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ABSTRACT

Part of the "Educating Gifted and Talented Students" series, the booklet presents activities specifically for gifted and talented children who are in a self contained classroom situation in kindergarten through sixth grade. Activities are explained to emphasize skills relating to identified characteristics of gifted and talented students--general and specific intellectual abilities, creative/productive thinking ability, psychomotor ability, leadership ability, and visual and performing arts abilities. Four sections encompass the major content areas included in most elementary school programs: reading and language arts, social studies, math, and science. A fifth section suggests general activities that can be applied to any content area. Each major section concludes with a sample integrating lesson that presents activities and skills relating to that content area in a unified and organized way. Within each content area section, activities are sequenced to include those appropriate for primary and intermediate levels, as well as activities that can be adjusted to meet the needs of all elementary levels. (SBH)

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Teaching the Gifted and Talented in the Elementary Classroom

by
Mary J. Heimberger

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INTRODUCTION

Gifted and talented children are one of our natural resources—and one that we have failed to develop fully. It is especially important that pupils with special gifts and talents be identified early so that their skills may be refined fully and their special talents developed to the highest degree possible.

Elementary pupils in kindergarten through grade six generally are curious, eager to learn, and have "sponge-like" minds that readily absorb new ideas and skills. These traits are even more true of the gifted and talented—all the more reason to "get 'em while they're young," to provide instructions and activities to develop their wonderful potential.

How are gifted and talented youngsters different from their peers? Contrary to a common stereotype, they are not "brains," "child geniuses," or "queer" and "strange." A teacher may have difficulty identifying the gifted and talented members of the class; they may not immediately stand out in the group. But in working with these students and getting to know them, some specific characteristics will be evident.

What are the characteristics of gifted and talented pupils? The United States Office of Education (1972) has identified six areas of "giftedness" which pupils may possess singly or in any combination. These six areas are:[1]

1. *General intellectual ability*—intellectual curiosity, exceptional powers of observation, ability to abstract, a questioning attitude, and associative thinking skills.
2. *Academic talent*—high grades in school, high achievement test scores, high ability in academic pursuits in or out of school.
3. *Creative and productive thinking skills*—divergent thinking, ability to elaborate and develop original ideas, fluency and flexibility in ideation.
4. *Leadership*—personal leadership (accepting responsibility for own actions and having a feeling of con-

1. Tuttle, Jr., Frederick B., and Becker, Laurence A. *Characteristics and Identification of Gifted and Talented Students.* Washington, D.C.: National Education Association, 1980.

trol over own life and decisions) as well as social and academic leadership (use of power, productive interaction with others, and personal self-control).

5. *Visual and performing arts*—superior ability in painting, sculpting, drawing, film-making, dancing, singing, playing musical instruments, and performing dramatically.
6. *Psychomotor skills*—athletic ability plus superior use of fine motor skills.

Although this definition has been modified (1978), the six areas delineated give a broad view of the special abilities which gifted and talented pupils possess. More specific characteristics for identifying gifted and talented pupils should evolve from the individual school district—from the goals of its gifted and talented program and from the specific population for which the program was designed.

How does a teacher spot gifted and talented pupils in the classroom? As just indicated, many school districts have their own guidelines for identification, and the classroom teacher may not bear full responsibility for such identification. However, this is not always the case—the classroom teacher may be *the* person responsible for such identification.

Here are some general guidelines that the teacher might use to identify the gifted and talented pupils in the class:[2]

- Seems to "need to know"
- Values learning for its own sake
- Has advanced vocabulary and verbal skills
- Has unlimited interests and a vast amount of information on a variety of topics
- Is a keen, alert observer
- Likes to organize
- Is concerned with values—right and wrong, good and bad
- Enjoys being challenged by difficult assignments, problems, etc.
- Is aware of problems others do not see, asks questions, and is willing to change a situation to improve it

2. "Identification of Gifted Students," School District Number 2, Sumter County, South Carolina.

- Approaches ideas and problems from a number of perspectives, is flexible
- Produces many ideas or products, often in a short time
- Exhibits originality in ideas
- Displays great curiosity, asks questions about everything
- Is willing to take risks, is adventuresome and speculative
- Fantasizes and imagines ("I wonder if . . .")
- Is sensitive to beauty in its many forms
- Displays grace in body movements
- Shows fine muscle coordination
- Likes physical action and activities
- Is realistic about own strengths and weaknesses
- Shows high regard and respect for others
- Is willing to consider more than one solution to a problem
- Is willing to make up own mind
- Assumes responsibility and carries it out fully
- Is self-confident with peers and adults
- Is generally well-liked by classmates
- Generally directs any activity he/she is involved in
- Has a sense of humor.

In addition, gifted and talented pupils often display special abilities in one or more of the following areas:

Music	Drama
Dance	Mechanics
Ceramics	Science
Painting	Mathematics
Sketching	Social Studies
Sewing	Foreign Language
Cooking	Athletics
Creative Writing	Leadership

A classroom teacher might use one or more of these suggested activities for quick identification of gifted and talented students:

1. Have pupils list as many uses as they can for a common object (such as a tin can or an empty bottle or a paper towel roll). Pupils with creative productive thinking abilities will generate many uses, including unusual ones.

2. Give pupils options for working with media other than print. For example, a "report" need not always take the form of a written document prepared for the teacher or delivered orally to the class. It might involve an art production (mural, diorama, chart, or poster), a slide-tape presentation, or a dramatic presentation utilizing role-playing. The same information can be presented in any one of these formats. This flexibility will encourage the use of special abilities in art, music, and the like.

3. Provide pupils with opportunities to assume leadership roles. Informal committee work or planning sessions will often generate an emergent leader. Often the same pupil(s) will assume the leadership role.

These three general suggestions are only examples of how the classroom teacher might identify gifted and talented students. Other activities could be developed in accordance with the specific classroom situation.*

A few examples of how gifted and talented pupils might "look" to the classroom teacher follow:

Leanna

Leanna always approaches her assignments from a perspective different from that of the other members of her class. In a "Write about a Picture" assignment she came up with a poem composed entirely of verb participles. When her peers criticized the poem saying that it was no "story," Leanna dismissed the matter by stating that to *her* it was a story, and a very good one. Leanna is especially creative in the artistic realm and often spends her free time in school drawing and making small paper sculptures. Her original stories are complex and many times in a fantasy or science fiction genre. She typifies the classification of creatively gifted.

Scott

Scott is a "whiz" in school, getting all A's on his report card and consistently scoring in the top percentile on standardized achievement tests. He enjoys school, particularly its

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* See *Characteristics and Identification of Gifted and Talented Students* for more specific information about characteristics and identification procedures.

more scholarly aspects, and spends considerable time out of school on academic pursuits. He is indeed an academically talented individual.

Karen

Even as an infant Karen was always observant of her surroundings. She learned to talk and read early and literally "soaked up" information from all sources. Her parents find her constant questioning to be a way of life. At the age of nine, Karen is already interested in and concerned with moral issues, and she enjoys the challenge of doing research, both in and out of school. Since most of Karen's behaviors are shown outside school, the teacher has to discover her abilities primarily through the parents. She is identified as an intellectually gifted pupil.

Nearly every elementary classroom in America has gifted and talented pupils in it—whether or not they have been identified as such. Some who have been identified are fortunate enough to attend special part-time classes or to participate in a program tailored to fit their unique abilities. But elementary classroom teachers cannot assume that all such children will be properly identified and that special provisions will be made for them. The teachers themselves must often assume the responsibility for identifying gifted and talented pupils, and for seeing that they receive the early skills training and involvement in special activities that they deserve and need.

This situation could be very burdensome for the elementary teacher who operates in a self-contained environment where a few gifted and talented children are mixed with other pupils. And that is the major reason why this book has been written—to suggest activities that will be profitable for gifted and talented pupils, yet fit within the schedule and curriculum of the ordinary classroom.

Each of the following sections presents a variety of activities specifically selected for gifted and talented pupils who are in a self-contained classroom situation in kindergarten through grade six. The activities emphasize skills relating to the six characteristics of gifted and talented pupils previously identified: general intellectual ability, academic talent, creative/productive thinking ability, leader-

ship ability, abilities in the visual and performing arts, and psychomotor abilities. In all the activities presented, at least one of these special ability areas is stressed; in some activities more than one area is accentuated. Thinking skills involving analysis, synthesis, evaluation, or creative/productive thinking are included in all the activities.

Four sections encompass those major content areas included in most elementary school programs: *reading and language arts, social studies, math,* and *science.* A fifth section includes a listing of *general activities* that can be applied in any content area. Although any given activity is listed under only one of these five headings, there is a great deal of integration of areas, particularly those involving the language arts skills of reading, writing, and oral language.

At the end of each of the major sections there is a Sample Integrating Lesson that presents many activities and skills relating to that content area in a unified and organized way. At the end of the General Activities section, a brief Sample Integrating Unit involves blending activities from all content areas under a particular topic of study. Although the individual activities suggested in this book might be used in isolation, it is highly recommended that teachers integrate activities and units whenever possible. This will avoid a "shotgun" approach to the teaching of gifted and talented pupils and will lead to a classroom program that is developmental, well-integrated, and coordinated.

Within each of the content areas a variety of suggestions are given which are sequenced to include activities appropriate for *primary level* (K–Gr. 3 or 4) or *intermediate level* (Gr. 4–6), and activities that can be adjusted up or down for *all elementary levels.* Because these activities have been selected for the gifted and talented child who is in a self-contained classroom with other pupils, the activities involve content materials and skills generally found in the elementary curriculum. Most of the activities can be done by individual pupils working independently. Since any given self-contained classroom may have as many as three to four pupils who fit the gifted and talented criteria, many activities are also adaptable for use by a small group of pupils. In some cases, the activity is one in which an entire class participates under the leadership of the gifted and talented

pupil(s). Each activity is particularly intended to provide special experiences that make use of the special abilities of the gifted and talented elementary pupils. Often the distinction between the gifted and talented student and others is the depth and quality of the work rather than the activity itself. Consequently, the appropriateness of these activities for gifted and talented pupils depends to a great degree on the classroom teacher's expectations for individual gifted students.

The activities included are a comprehensive selection that teachers can use "as is," or which they can modify for their own particular classroom situation. The activities also provide a departure point from which new activities can be developed by teachers and pupils. A list of helpful resources specific to each area follows that section.

READING AND LANGUAGE ARTS ACTIVITIES FOR GIFTED AND TALENTED PUPILS

The Reading and Language Arts activities that follow have been categorized into five areas that represent major concentrations in the reading and language arts curriculum: Vocabulary Development, Nature of Language, Listening and Oral Expression, Literary Appreciation, and Written Composition. This sequence reflects working from the more elementary areas of study to the more sophisticated, and from learning about concepts to production of works.

Vocabulary Development

Activities for Primary Level (K–Gr. 3 or 4)

The teaching of vocabulary should involve heavy emphasis on learning new words in context and in relation to personal experiences. The words should be acquired for use in reading, writing, speaking, and listening, and the integration of these four basic language skills is of major importance. "Learn a word and it is yours for life" is a good maxim—but only if that word is used naturally, accurately, and frequently by the learner. Rarely should new words be taught in isolation, but rather as personal and academic experiences make them important. A short, isolated vocabulary raises interest in words, but for effective learning integration is important. The specialized vocabulary of con-

tent areas (science, for example) may be taught in relative isolation in the sense that vocabulary plays an important part in the acquisition of specific concepts and information.

All the activities in the following section are designed to promote enthusiasm in the acquisition of new vocabulary at the elementary level. These activities are also designed to lend themselves well to integration with other content areas.

—Have pupils match problem situations with their solutions. Teacher draws problem situations on index cards (for example, a man with a flat tire), and on another set of cards the materials needed to solve the problem are shown (a jack). A code for self-checking can be put on the matching cards. To extend this activity, the teacher could list words for the materials needed instead of pictures for matching. This can also be used as an oral language activity by having pupils explain their matches and solutions in detail.

—Have pupils develop a series of five Sense Books. For example, the Touch Book might include real items such as a cotton ball, a piece of sandpaper, or fabric swatches with appropriate descriptive words written below each. Cutout pictures or pupils' original drawings can also be used. Example: This cloud feels like . . .

—Have pupils cut out all the letters of the alphabet from magazines or newspapers, then make a collage using these letters along with pictures that show objects beginning with the letters or containing their sounds.

—Have pupils try to make a sentence using all twenty-six letters of the alphabet. The classic example is "The quick brown fox jumps over the lazy dog." A variation would be to have pupils make up a twenty-six word story in which each word starts with a different alphabet letter. Certain letters could be repeated in the story to maintain context.

—Have pupils find hidden words using strips of transparency paper and an overhead projector. The teacher prepares several one-inch by eight-inch transparency strips lined at one-inch intervals. In each one-inch square a letter is written with a felt-tip marker. Pupils place from two to four of these strips on the overhead projector, then slide them back and forth to find as many hidden words as possible.

—Have pupil pairs play Verbal Tennis. A word is "served," and pupils must go back and forth supplying dif-

ferent words that rhyme, begin with the same sound, contain a long vowel, or whatever—depending on the criterion for that game. A "mixed" game can be played in which all criteria apply; after giving a word, the pupil must tell which criterion it follows.

—Have pupils make or copy a list of compound words, then draw pictures of their separate parts (for example, a picture of a basket and a picture of a ball = basketball). Have them discuss or write how they think each compound is derived. This could be extended by having students locate or create compound words with a specific area of study (for example, the atmosphere and "rainshower," "thunderhead," "sunshower").

—Have pupils add "word problems" without numbers. For example,

hot weather
\+ no rain in the forecast
a heat wave

hot dogs
soda pop
potato chips
pickles
ice cream
\+ watermelon
a picnic lunch

—Have pupils use the phonetic key from their dictionary or glossary as a code to write messages or short stories for their friends to decode.

—Have pupils make a Zany Zoo in which all the inhabitants are made from recycled materials such as boxes, cans, string, wire, paper, etc. A sign accompanies each animal on display giving its name, habitat, and favorite foods. For example,

The Hippy Hoppamus

Lives in McDonald's parking lot.
Eats leftover hamburgers, French fries,
and discarded paper cups.

A variation on this would be to make a Monster Mix featuring "wild things" like those in Maurice Sendak's *Where the Wild Things Are.*

—Have pupils tape record their conversation at lunch, on the playground, or during a class meeting or planning session. Play back the tape and list all the contractions used

in the conversation. Then discuss why these language units are helpful. A variation would be to write down all compound words in the conversation or words that can be abbreviated. Students can also discuss differences between spoken and written words.

Activities for Intermediate Level (Gr. 4–6)

—Have pupils write "daffy definitions" for unusual words. The new definition can then be matched up with its term by other pupils in a game format (for example, *carpet-bagger*—one who puts rugs into bags). A variation of this would be to have pupils use compound words to make up silly questions. For example,

Did you ever see a *cat fish?*
Did you ever see a *cow slip?*
Did you ever see a *tooth pick?*

These definitions or questions might even be illustrated in a cartoon format. Pupils, however, should be able to give the "real" definitions of the words used. The information and interest levels of this activity could be enhanced if the words all reflected a specific theme or unit.

—Have pupils look for small words in larger words, but *not* root words! The small word should bear some interesting relation to the larger word it is in. For example,

Air pollUTiOn = AUTO
wEight wATchERS = EATERS

—Have pupils use rebus writing, which utilizes picture symbols for words. Pupils can translate existing materials or make up their own original stories. For example,

= I
U = you
1 = won
2 = to, too

—Have pupils write sentences that begin with a one-syllable word followed by a two-syllable word, then a three-syllable word, and so on. For example,

Some people entertain enormously
1 2 3 4
extraordinary hippopotamusses.
5 6

Another variation is to build up a sentence one syllable at a time, then decrease in the reverse order. For example,

One	little	antelope	frolicked	there.
1	2	3	2	1

—Have pupils invent imaginary names for characters that form funny or familiar phrases. These names might be used in writing a story. For example,

Patty Cake
Jim Dandy
Candy Cane
Lotta Weight

—Have pupils make up Tom Swifties in which an adverb adds double meaning to the sentence. (Tom Swifties are based on the style of writing used in the old Tom Swift adventure series.) For example,

"Have some more candy," she said sweetly.
"Drop that knife!" he cried pointedly.

—Have pupils create Hink Pinks, Hinky Pinkys, or Hinkity Pinkitys. These are riddles in which the answer has two rhyming words with the same number of syllables. For example,

Hink Pink (one syllable) : an obese rodent—fat rat
Hinky Pinky (two syllables) : an attractive feline—pretty kitty
Hinkity Pinkity (three syllables) : a yearly handbook—annual manual

—Have pupils work Cryptowords and Cryptograms, in which a consistent code is present in the puzzle, and pupils must "crack" it to read the word, phrase, sentence, or quotation. (See *Anchor* by Mary E. Platts, pp. 202-206, for good examples.)

—Have pupils collect and classify examples of propaganda techniques used in newspaper, magazine, and television advertising. The samples might be displayed on a bulletin board or put into a booklet. Pupils might try their hand at writing (and perhaps producing in skit form) ads employing the different propaganda techniques. Those techniques most appropriate for elementary level study are:

1. *glad names*—the product makes you happier, prettier, cleaner, etc.

2. *bad names*—the other product is inferior, Brand X vs. Brand Y
3. *plain folks*—ordinary people like you and me use this product
4. *celebrity sell*—sports, movie, and television stars owe their success to this product
5. *bandwagon—everyone* is buying this product
6. *play on words*—product has a gimmicky name that is used in the advertisement

Some children could extend this by examining specific advertisements and commercials for color, symbols, and graphic techniques use to manipulate the audience.

—Have pupils obtain newspapers from different cities or towns, for the same date if possible. They can compare major news coverage, sports pages, editorials to see how local pages, advertising, and entertainment sections are alike or different. If a large number of out of town papers are collected, their front pages might be displayed on a bulletin board. After the newspapers have been analyzed, students can draw conclusions about the general format of the newspaper and about interests within local areas. These conclusions could be tested by comparing them with additional newspapers.

A variation would be to have pupils compose their own newspaper by cutting and pasting from different newspapers. Students select major stories, decide where they should be placed, etc. A real newspaper format is followed as closely as possible. The composite newspaper can be pasted together on blank newsprint or on large sheets of brown wrapping paper. Encourage the use of newspaper terms for layout purposes.

(Some additional newspaper activities are included in the Social Studies section of this book.)

Activities for All Elementary Levels

—Have pupils write sentences containing homophones (words that sound alike but are spelled differently and have different meanings). See how many different homophones can be fit into one sentence. For example,

Dad felt a *pain* when he saw the broken window *pane.*

Is it *too* much trouble *to* ask for *two* cakes?

The wind *blew* the sailboat into the *blue*.

Again, if the words were all related to a specific topic, pupils gain additional knowledge and their interest is enhanced.

—Have pupils write sentences containing homographs (words that are spelled alike but have different meanings and often different pronunciations). For example,

When I *bow* the *bow* falls out of my hair.

He wrote the *lead* article with a *lead* pencil.

A variation would be to have pupils write two-syllable homographs where the change in accent signals a change in meaning. For example,

When do you pro ject/ you will finish your science proj/ ect?

—Have pupils use Western Union telegram blanks and a copy of a newspaper article to condense the important information into a limited number of words. This is one way to highlight the "5 W's" of newswriting—who, what, where, when, why—and sometimes how.

—Have pupils complete analogies and then formulate their own for others. Lead into this activity by using number completion analogies. For example,

4 is to 8 as 2 is to ____.

7 is to 8 as 3 is to ____.

Puppy is to dog as kitten is to _____.

Photograph is to scenery as recording is to _____.

—Have pupils make a Vocabulary File containing new and unusual words. This is a cumulative project, and pupils can occasionally go through the collection reading the words and trying to define them or categorize them according to action words, describing words, sound words, etc. This activity might also take the form of a personal Word File within a specific unit of study.

—Have pupils keep a cumulative list of words that have onomatopoeia (their sound imitates what they mean). For example,

gurgle, cheep, hiccup, splash, honk

A variation is to have students keep a running list of palindromes (words that are spelled the same way forward and backward). For example,

dad, toot, level, Otto

Or students can keep a running list of words that spell one

thing forward and another backward. For example,

was—saw
tub—but
tool—loot

—Have pupils form Word Chains in which a word is changed one letter at a time in successive steps to produce a list of different words. Sometimes a very long chain will result. For example,

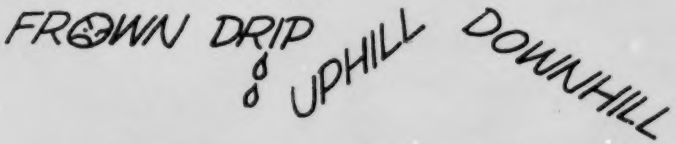
fish	well
dish	will
disk	wilt
dusk	hilt
musk	halt
must	malt
most	molt

—Have pupils make Acrostics using names, and adjectives to describe the names. For example,

J—jolly	S—squeezable
A—active	A—agreeable
N—neat	N—nimble
E—energetic	T—tubby
	A—athletic

—Have pupils keep a cumulative list of acronyms (such as SALT, ERA, OPEC, and UNICEF), that they find in newspapers or magazines or hear used on television, and find out what each acronym stands for. Students can also make up some original acronyms. For example, PEP might stand for Pupils Educating Pets (an obedience course).

—Have pupils write words in graphic form that shows their meaning. For example,



—Have pupils write words that contain double A, double B, etc. for the entire alphabet (except for J, Q, X, and Y which are not used as double letters in the English language). For example,

*aa*rdvark, dri*bb*le, access, fi*dd*le, etc.

—Have pupils develop Special Interest Alphabets, in which words in alphabetical order all relate to a specific topic. For example,

A Baseball Alphabet

A is for apparatus.
B is for bat, ball, and base.
C is for catcher.
D is diamond and drive.
E is for error.
F is for field, fly, and fielder.
G is for glove.
H is for homer.

Nature of Language Activities

A study of the Nature of Language focuses on teaching pupils *about* language—its history and development, how it is constantly changing, its variation in terms of geographic and social usage. As students explore language and examine cultural implications, semantics, and historical origins, they will realize language involves much more than words and structures.

Linguistics (the scientific study of language) forms the basis for the information presented in this area of language arts study. The activities below are designed to help pupils understand the nature of language. These activities are appropriate at all elementary levels, especially grade 3 and above.

—Have pupils find out where their first and/or last names originated and what they mean. An unabridged dictionary or books listing names for a new baby are good reference sources for first names. Last names are generally a bit more difficult to trace, though checking with family members may be helpful. Pupils might make a poster showing their name and what it means, or illustrate its meaning in some other way. If they prefer, pupils might choose a new name they would like to have rather than use their actual name. The selection of names for children is more important in some cultures than in others. By investigating names in some American Indian tribes or in Oriental cultures, students may learn about the various cultures as well as learn about their use of names and language.

—Have pupils learn and use the names of common objects (furniture, clothing, food, parts of the body, colors) in another language. They can compare these foreign words to their English counterparts.

—Have pupils make a list of figures of speech that might be interpreted literally with amusing results. For example,

It's raining cats and dogs.
He thinks money grows on trees.
Snug as a bug in a rug.

Have pupils draw the literal meaning and then explain orally or in writing what the phrase really means. Pupils could also create their own figures of speech with interesting literal interpretations. A variation would be to have pupils list homophones, homographs, and multiple meaning words that also can be interpreted in an amusing way. A good source that is also fun to read is *The King Who Rained* by Fred Gwynne, or the sequel, *A Chocolate Moose for Dinner*. For example,

a *frog* in your throat
a car *pool*
playing *bridge*

—Have pupils devise their own language codes and use them to write secret messages or stories. A few examples of secret number codes are given in the Math Activities section of this book. Here are two examples of language codes:

Backwards Alphabet code	*Missing Vowels code*
a = z	words are written
b = y	leaving out
c = x	a, e, i, o, u, and y

—Have pupils list words that have come into the English language since they were born. Students can track down these words by talking with parents and by reading about historical events and technical developments. For example,

CB radio
countdown
printout
women's lib
supersonic jet

As a counterpart to this activity, pupils can also seek out words or expressions they thought were unique to their generation but actually have been around a long time. Pupils can study current slang expressions as well as slang from the past and try to figure out how these expressions have come about. For example,

greaser
hot rod
neat-o
cool
turkey

This activity can focus on a specific topic by having pupils report on the specialized vocabulary of a group that interests them. For example,

CB radio talk
gourmet cooking terms
terms common to a specific sport (golf, hockey, football, etc.)
the language of a specific occupation (lawyer, detective, etc.)

The report should include the meaning and the origin or derivation of as many of these terms as possible.

—Have pupils look for examples of words that have "dropped out" of our language. They might find these words when reading about the past or by asking grandparents or senior citizens what life was like when they were young. For example,

trolley
flapper
bloomers
gaslight

Some of these words are still used but the meanings have been modified considerably. Interested pupils can trace how these words have changed, hypothesizing the reasons for the changes.

—Have pupils check the ancestry of "borrowed words" in our language. Give them a starter list, and suggest that they check in an unabridged dictionary for language derivation and possibly for original form. The teacher can refer to *The American Language* by H. L. Mencken for examples of borrowed words. For example,

yacht—Dutch
cockroach—Spanish
alkaline—Turkish
cello and alto—Italian
house—Anglo-Saxon
moccasin—American Indian
gourmet—French
via—Latin

A variation would be to ask pupils to look up the meanings of a list of foreign phrases commonly used in English. Pupils should also note from which language each phrase comes and how the phrases are used—including situation, meaning, and pronunciation. For example,

hors d'oeuvres
et cetera
vice versa
carte blanche
nom de plume
ad infinitum

—Have pupils compile a list of dialect words and expressions, and "key" them to a U.S. map according to the region where they are most commonly used. For example,

hero, hoagie, submarine or "sub", grinder — a sandwich

pop, soda, soda pop, cola, tonic — a soft drink

Listening and Oral Expression Activities

Activities to promote listening and oral language skills are combined because they represent a natural integration of two basic language arts skills: listening and speaking. These skills provide the basis for all future learning and may often be taught in conjunction with the more advanced skills of reading and writing. Even when treated as separate skills, listening and speaking should involve more than just

receiving and repeating information. At the higher level these skills involve analysis, evaluation, and appreciation of their use.

—Have pupils listen to a series of riddles that the teacher has taped. After each riddle the teacher stops the tape and gives students a chance to write down their responses. At the end of the tape all the riddles are repeated and answers are provided for pupil self-correction. Pupils should be encouraged to write their own riddles and tape them.

—Read a mini-mystery to the pupils and have them listen for clues that lead to the solution of the problem. For example,

> When Joe and Louise came into the locked, tenth-story room, they found the victim hanging from a rope attached to the high rafter. There was no other furniture in the room, but the window was open and there was a puddle of water on the floor. How did the victim tie the rope around the rafter and then hang himself?

Pupils should pose a variety of solutions based on the facts they heard and then discuss the feasibility of each solution. Interested pupils could create their own mini-mysteries, trying to stump the other students. Some mini-mysteries could even be taped and used in listening centers.

—Have pupils listen to a teacher-made tape featuring parts of a factual newscast and parts of a news commentary. As they listen to the tape, pupils should record the items that are "facts" and those that reflect "opinion." Students might also record words that bias the audience. Pupils can compare the parts of the tape for likenesses and differences, and they may even try writing and taping their own commentaries on current issues.

—Have pupils make a tape of familiar sounds at home, school, outdoors, etc. Since some sounds are hard to identify out of context, this tape can then be played as a guessing game. For example,

> *Sounds at home*—water running, phone ringing, vacuum cleaner, dishwasher, teakettle, etc. (Pupils can tape sounds in one room at a time or at random throughout the house.)

—Have pupils develop their own rules or standards for

good listening. They might list these rules in poster format so the list can be permanently displayed in the classroom.

—Cut up a picture to form pieces of a puzzle. Have one pair of students put the puzzle together, recording the correct directions in detail. Another pair of students should listen to the directions, trying to follow them accurately. This second pair of students should do only what the directions tell them to do, not what they see as correct. This activity could be extended to include other kinds of directions or instructions—to places, for playing games, and so forth.

—Have pupils first pantomime a list of statements, then say the statements using appropriate voice intonation. For example,

I don't know.
No, I can't.
I'm so happy.
Look out!

—Have pupils choose cards on which different moods have been written, then express the mood using pantomime or appropriate dialogue (without using the word on the card.) This is a good activity to use in a partner format. Other students can try to guess the mood being demonstrated. For example,

elated, proud, depressed, lonely, upset, nervous, mean, patient

—Have pupils tape record themselves reading a selection aloud. The students then listen to the tape and answer the following questions as they follow along with the printed text of the selection. At any point the tape may be stopped to write down information, or it may be replayed. Most pupils will want to replay the tape several times, concentrating on answering a few questions at a time.

1. Do I read in phrases?
2. Does my voice show changes in pitch (high and low) and stress (emphasis)?
3. Did I misread or mispronounce any words?
4. Did I substitute words?
5. Did I leave out any words?
6. Did I add any words?

7. Did I repeat any words?
8. Did the reading sound smooth and flowing?
9. Did I ignore any punctuation marks?

These questions may be dittoed for use as a checklist by individual pupils.

—Have pupils choose a poem or short story to read dramatically before the class. This dramatic reading might include the use of a real object related to the poem or story. For example,

> Pupil reads "The Song of the Corn-Popper" by Laura Richards, while popping real corn in a popcorn popper.

Literary Appreciation Activities

Literary Appreciation is an area in which pupils respond emotionally and intellectually to what they are reading. Both the affective and cognitive domains are put into play, and pupils are encouraged to react fully and honestly to what is read. The following activities suggest a variety of ways in which pupils can respond to literature honestly and analytically. The activities are appropriate for all elementary levels.

—Have pupils read the first few pages of a novel and predict what will happen based on the introductory information (setting, characters, and initial conflict). The predictions can be modified as students read further in the novel.

—Have pupils make their own Reading Design on which they record books they have read. A reading design is usually a geometric pattern, a portion of which is colored in for each book read. Titles of books are recorded on a separate sheet. Different categories of books (sports, animals, poetry, etc.) may be located on different sections of the Reading Design.

—Have pupils write a letter or essay nominating their choice for the Caldecott or Newbery awards, providing a rationale for this nomination. (The Caldecott Award is given annually for the best illustrated children's book; the Newbery Medal is given annually for the best written children's book.)

—Have pupils read a story but stop before the ending is obvious. Have them summarize the story to that point

and add the ending. This activity can be done in writing or with a tape recorder. At this point have pupils read the actual ending and compare their version with the original. A variation of this activity would be to have pupils draw their ending in regular or cartoon format.

—Have pupils look for the organizational pattern of a story by reading each paragraph for the main idea and summarizing that idea with one important word. After reading the story, pupils can reread these important words and reconstruct the story. For example,

Paragraph 1—puppy
Paragraph 2—lost
Paragraph 3—rainstorm
Paragraph 4—reunion

—Have pupils select part of a book or story to produce as a stage or radio drama. The selection might feature a dramatic incident, exciting conversation, or a funny part. Appropriate background music or sound effects might be included to add emphasis.

—Have pupils dress up as a book character and report on the book by telling about it from the character's point of view. Narrative can be taped in advance and played as the character pantomimes actions. An extension of this activity would be to have pupils participate in a "talk show," taking the role of a literary character and answering questions from the character's point of view.

—Have pupils make a Book Mobile that represents in graphic form the theme, main events, and/or characters in a book. A wire coat hanger can be used for the "body" of the mobile.

—Have pupils draw a five- to six-frame comic strip summarizing the main events and characters in a book they have read. Pupils can use some aspect of the book they particularly enjoyed (a phrase, description, character, or plot) to begin their own story.

—As pupils read biographies or autobiographies, have them compare the information given in these books with other sources to verify the events and to help them interpret the authors' point of view.

—Have pupils do research on the authors of their favorite books. Information may be gathered from original

book jackets, by consulting the *Junior Book of Authors*, or by writing directly to the publisher or author. Perhaps an author's display can be set up, including books, pictures, and other items that represent the author's life, special interests, etc. Possibly an in-person or telephone visit with an author living in the area might be arranged.

—Have pupils make a collection of poems they especially like. All these poems may be by one poet (such as John Ciardi, Dorothy Aldis, or David McDord), or by many different writers. The poems should be carefully copied in neat handwriting, possibly illustrated, and kept in a special booklet or notebook. Pupils also may like to memorize these favorites and recite them.

—Have pupils become literary critics of comic books. The following questions might be used to evaluate the comic books:

1. Is the dialogue realistic or natural?
2. Could the events really happen? Why or why not?
3. Is the material humorous? Is it violent?
4. Do the drawings seem real?
5. Do you learn anything from reading this comic?

Either a written or oral review can be made, based on the results of the evaluation. A written review might be sent to the publisher. Students can read letters to editors in comic books, selecting those that are most critical, although not necessarily negative, of a story. They could then evaluate the validity of the criticism by reading the story and forming their own opinions.

—Have pupils watch children's after-school television specials and compare them with the book from which they are derived. If the TV special is an original, pupils can decide if it would make a good book. A variation would be to compare children's movies with their book version. Pupils can tell how the movie and book are similar and different, and they can express which they prefer and why. Teachers should keep an eye out for upcoming television specials and films based on good children's literature.

—Have pupils review television shows instead of books. A particular show might be assigned, or students could be given free choice. The review can be written in book review format and might include the following points:

1. What is the name of the show? On what day and at what time is it broadcast?
2. What type of show is it? (comedy, mystery, variety, quiz, etc.)
3. Tell about the show's main character(s). Did you like them or not? Tell why.
4. Was there a plot? Was it interesting to you? Why or why not?
5. What parts of the shows did you like best? What parts did you like least?
6. Would you recommend this show to your friends? Why or why not?
7. Would you watch this show regularly? Why or why not?

—Pupils can also write or tape their reactions to television dramas, paying particular attention to such aspects as stereotyping of groups, dialog, plot structure, unnecessary violence, and so on.

—Pupils can read reviews of books they have read or reviews of shows they have watched, analyzing these reviews for both content and style. As they read, pupils should look for passages that evoke strong feelings or associations. When they come upon these passages, they can record the feelings or associations that are raised. Finally, they can analyze the passage to determine how the author reached them so intensely or what in their own lives related so strongly to the passage. Students can then write their own reviews following guidelines they delineated from reading the professional reviews.

Written Composition

Writing is undeniably a skill that is basic, even at the early elementary levels. While knowledge of words and of the nature of language helps pupils understand language, it will not help them write more effectively. This can be accomplished only by having pupils write, especially if they follow the composing process. The composing process in general consists of three stages: *prewriting*, in which the writer gathers ideas; *writing*, in which the writer experiments with translating thoughts to printed words; and *rewriting*, in which the writer revises the draft for an audi-

ence. Tuttle[3] has subdivided this process into several instructional stages, as follows:

stimulus→reaction to stimulus→rough copy→skills instruction→sharing→final copy→submission

Tuttle has coined the term Instructional Composing Process to place the composing process of prewriting, writing, and rewriting into a framework teachers can use with their students.

In the Instructional Composing Process described above, *prewriting activities* involve the presentation of a stimulus for writing and the verbalization (discussion) of the stimulus. This verbalization is a crucial step in the process as it "sets the stage" in the writer's mind and helps the writer prepare for the actual writing. Most of the writing activities suggested below may be developed into full writing lessons; the prewriting activities, writing and sharing sessions, and rewriting constitutes a full composition lesson.

Skills instruction activities integrate writing skills such as usage, mechanical skills (punctuation, capitalization, spelling, etc.), and style skills (modification, sentence structure, etc.) in the full composing process to allow for immediate application through sharing.

Activities for Primary Level (K–Gr. 3 or 4)

—Have pupils develop lists in which words are put into categories for later use in their writing. For example,

color words; size words; mood words; action words; how, where, and when words; people and place words; etc.

—Have pupils write as many sound words as they can, then use them in sentences or stories. For example,

whirr
whoosh
splat
kaboom

3. Tuttle, Jr., Frederick B. *Teaching Technical and Scientific Writing*. Washington, D.C.: National Education Association, 1978. p. 31.

A variation would be to use these words in a cartoon or comic strip format, where such words often originate.

—Have pupils make a list of animals or insects. These words are then used to make alliterative pyramids. For example,

dog	fish
dirty dog	flying fish
dumb dirty dog	frantic flying fish
dumb dirty dog digging	frantic flying fish frying
dumb dirty dog digging donuts	frantic flying fish frying furiously

—Have each pupil bring in or select a picture postcard from a classroom collection. They must write a one-line description of the card. Card and caption are then displayed in a booklet or on a bulletin board.

—Have pupils find out the cost per line (or per word) of want ads in the local newspaper. Have them write ads to buy or sell something. Then ask students to rewrite the ads to see if they can cut down the number of words and the cost of the ad.

—Have pupils select several pictures from magazines, newspapers, or a picture file. Students then place the pictures in a sequence and write a story that links the pictures together. (Pictures may be pasted on separate sheets or on one long sheet of paper.)

—Have pupils listen for or look for words in advertisements that stand out and attract a consumer's attention. Have them list these words (or synonyms for them), and use the words to write an ad for a product they want to market.

—Have pupils choose an advertisement from a magazine or newspaper and underline the adjectives used in it. Then have students rewrite the ad, substituting antonyms for the underlined words. Ads may be shared by reading them aloud or by pasting the antonyms over the adjectives and displaying the ads on the bulletin board or in a booklet. For example,

> "_____, the *high* calorie *hard* drink that's sure to make you *fat* and *ugly*."

—Have pupils write original figures of speech, which are then printed on large oaktag sheets and cut in half to be used in a game called Scrambled Figures. For example,

As soft as / a furry grey rabbit
and
As hard as / an old tortoise shell
may become:
As hard as a furry grey rabbit.

—Have pupils read many examples of Tongue Twisters and then write their own. They may choose the letter or letter combination they like best. For example,

Teeny tiny timid Ted tried to top the tall tree with tons of tarnished tinsel.

—Have pupils make a Feely Box containing items with different shapes and textures. Pupils should cite as many words as they can describing the sensation. Then they may write stories or skits incorporating the objects and the words that describe them.

—Have pupils write an All About Me Book. The book can include a self-portrait, a short autobiography, snapshots, original stories and poems, and special lists of favorite foods, people, sports, vacation spots, hobbies, and so on.

—Before pupils write biographies of famous people, have them write about someone they know, such as a parent or other relative, a babysitter, a neighbor, or a school employee such as the nurse, secretary, principal, or custodian. Set up sample interview questions such as:

1. What is your full name?
2. What are your hobbies? What do you like to do in your free time?
3. What is (or was) your favorite school subject? Why?
4. What do you like best about your job?
5. Do you have any children? Any pets?
6. What story or anecdote about yourself would you like others to hear?

Activities for Intermediate Level (Gr. 4–6)

—Have pupils cut advertisements out of magazines or newspapers, then examine the ads for figures for speech such as similes, metaphors, or personification. Ads are then rewritten, using different figures of speech.

—Have pupils choose a book or story which they rewrite as a play or television script. The plot must be broken down into a reasonable number of scenes. Students can summarize

the characters, location, and action for each scene. For example,

Characters	*Location*	*Action*
Mother Jim Shep, Jim's dog	Kitchen of Jim's home	Mother tells Jim that Shep has to go. Jim argues Shep's value to the family. Mother won't buy Jim's argument.

A further extension would be to have pupils change a story from its present format into a radio or television script, then audio- or videotape it for later presentation. This could be done with books or stories or by taking characters from different stories and writing original scripts for them. Script writing, of course, could be used with any content. For example,

Science—Weather Reporting
How to Grow Healthy Houseplants
Social Studies—Our Community and How It Has Grown
The United Nations
Math—Cooking with Metrics

—Have pupils do research on common superstitions—their origins, probable validity, and whether they are still believed. For example, pupils might survey a cross section of the school or community to find out which superstitions are still popular. The final results of this research could be a formal documented paper, a script for a television or radio report, or even a script for a dramatization of the results in play or puppet theater format.

—Have pupils read several proverbs, and then rewrite them so others must guess what they are. For example,

A rock that's in motion doesn't grow lichen.
(A rolling stone gathers no moss.)

Never enumerate your poultry until they have emerged from the shells.
(Don't count your chickens before they are hatched.)

—Have pupils choose and read a traditional folktale, legend, or myth, then retell it using modern language and a contemporary setting.

—Have pupils read several legends, then write one of their own. This original legend might be based on stories told by grandparents or "old timers" in the community or might concern a contemporary figure who has legendary qualities.

—Have pupils read fables by Aesop and LaFontaine, then write fables of their own. Here is a good approach:

1. List some characteristics—messy, lazy, greedy, strong, helpful, friendly.
2. Write characters' names to fit the characteristics—Gus the Greedy, Helpful Hannah, Rufus the Rude.
3. List lessons that might be learned in a story—It doesn't pay to be late; doing something in a hurry may mean doing it over.

The results of these three steps are then used to develop the fable.

—Have pupils produce a class newspaper or literary magazine on a regular basis as a group project. All of the responsibilities of production—writing, editing, layout, printing, finishing—are handled by volunteers; these duties are "swapped" from one edition to the next so that pupils can participate in different phases of the project. This newspaper or magazine should be published within the school's budget, if possible, and distributed free to parents and teachers and possibly to other pupils.

—The rewriting of other works could serve as a prelude to actually translating works from other cultures into English. This has been done with very productive and exciting results with poetry from various First American tribes.

Activities for All Elementary Levels

Teachers should select appropriate activities for individual students, using the activities as prewriting exercises or skills instruction. Most of these activities should be integrated into longer, more complete units of writing activity.

—Have pupils write a sentence, then recopy it on heavy oaktag paper and cut it apart into meaningful units or phrases. Next have the students rearrange the units to form

a different version of the sentence. Some pupils will write more complex sentences and will thus have more units to rearrange. For example,

The little lost boy / wept / quietly / on the front steps.

On the front steps / the little lost boy / wept / quietly.

A collection of these sentences-in-units might be made and used as a game in which points are given for each sentence variation.

—Have pupils state their hobby or special interest and list all the action words involved in doing it. The words could be categorized according to steps or topics within the field. Pupils can then either illustrate the list or use it to write a complete description of the hobby or interest area. For example,

Raising Houseplants

1. Cutting
2. Rooting
3. Potting
4. Watering
5. Spraying
6. Fertilizing
7. Hanging

—Have pupils develop an analysis chart for an object, and then write a descriptive sentence or paragraph using these terms. For example,

Object	*How It Looks*	*How It Sounds*
canary	yellow feathered perky bright-eyed	chirpy

How It Feels	*How It Tastes/Smells*	*What It Can Do*
soft warm	———	sing, hop, chirp, swing, fly, sleep, eat

—Have pupils "map" a story by drawing a map or diagram of the main locations of the action or plot. The sequence of action is labeled 1, 2, 3, etc., and a few lines about each location are written below or on the back of the story map, keyed to the numbers.

—Have a pupil or adult dress up as someone else and come into the classroom, walk around, sit, and then leave after a few minutes. Pupils are asked to observe this person closely, and after the visitor has left they write a precise factual description of the person based on their observations. This description could then be used as a basis for developing a short story around the character.

—Have pupils solve the problem of "overworked words" such as *run, pretty,* and *nice* by compiling their own thesaurus as an ongoing project. When they need an alternative to an overused word, they can consult this source. The thesaurus might take the form of a looseleaf notebook listing the overworked words in alphabetical order, each followed by some fresher alternatives.

—Have pupils collect a series of interesting headlines or newspaper photos that can be used to provide story ideas.

—Have pupils look at a large picture from which an important person or feature has been cut. They then write or tell about the picture from the point of view of the "missing member," using the first person. As a variation, students can describe the missing person on the basis of other information in the picture. After they form an hypothesis about the person, they should evaluate their hypothesis by demonstrating how the other components of the picture support their impression of the missing person.

—Have pupils convert a comic strip from its illustrated form to a written narration. For example,

> Blondie says to Dagwood, "Hurry up, dear, or you'll be late for work." Dagwood runs past her out the door without his trousers on . . .

—Have pupils collect cartoons from which they remove the captions or conversation balloons. New captions or balloons are then written for the frames. Some of the more popular cartoons will generate a number of different but equally funny responses.

—Have pupils bring in advertisements from newspapers, magazines, or television. Students then rewrite these so each has a style different from the original. For example, an advertisement based on statistical facts might be written in an imaginative style.

—Have pupils look at a circle, then list the images that

the circle suggests (for example, coins, an eye, a smiling face, the sun, a perfect hole, top or bottom of a drinking glass). The final list might be incorporated into a poster or a collage. Pupils can then translate the poster or collage into a narration or exposition using the items as a starting point.

—Have pupils choose their favorite number and write about what it suggests to them. They might illustrate their ideas.

The Number Two is:
a pair of shoes
company
twins
double or nothing
no longer a baby

—Have pupils write down all the things they can do on a boring day when they can't leave the house. These might include helpful activities (polishing the silver for Mom) or more creative activities (making a salt crystal garden).

—Have pupils take a Sense Walk on which they feel (and perhaps collect) different textures, note smells and sounds, etc. Upon returning, impressions of the walk are recorded, using descriptive language and possibly incorporating illustrations of the objects collected. A variation would be to go on a Blind Walk. Pupils are blindfolded and must rely on their senses of touch, hearing, and smell. (This works best as a group activity in which the pupils hold onto one another, and the leader is without a blindfold. Or pupils can be paired, one with a blindfold, the other without.) Either of these activities can provide valuable information for a writing unit. Pupils can write stories for the data listed or they can explain their own feelings about the experience.

—Have pupils make a collage or montage to represent "Me." A variety of magazines (for pictures and other cut-outs) and art materials should be available, and pupils can be encouraged to bring in special photos and other items to include in their project. Collages or montages can be displayed or possibly exchanged. Pupils can analyze each other's collage or montage and write a brief character sketch based on it. This activity works best when pupils are not well acquainted; alternatively, names must be left off the works.

—Encourage pupils to keep a Talking Notebook with a friend. In this notebook students record daily or weekly written communication—the pupil writes a note, message, or story; the friend takes the notebook, reads the entry, and makes a response. A variation would be to keep the Talking Notebook with the teacher who reads and responds but does not "correct" the notebook. This technique can open a whole new level of pupil-teacher communication and understanding. Another variation would be to use this notebook as a means of communicating between home and school. For this purpose, pupils write about school experiences at the end of the week and share these entries with parents during the weekend. On Sunday or Monday they write about their home experiences. This is a valuable activity for the gifted and talented, as teachers may learn about the exceptional extracurricular interests and experiences of students who do not display their abilities in school.

—Have pupils create a Graffiti Wall in the classroom, on which original sayings, jokes, riddles, etc., are written. Pupils must first know what graffiti is and be able to discriminate between clever and tasteless examples. A variation would be to have pupils create original bumper stickers. These bumper stickers might be general in nature, or relate to a particular issue such as conservation or athletics.

—Have pupils develop a Think Tank—a collection of ideas for stories. Ideas are written on cards, possibly illustrated, and stored in the Tank (a box or file). Story ideas might include titles, beginning sentences, phrases, pictures, feelings, wishes, etc.—anything that might inspire a story.

—Have pupils write a story or play that incorporates all the objects in a grab bag—a paper bag filled with between five and ten small everyday items. A variation would be to have a group of pupils improvise a skit using the contents of the grab bag.

—Have pupils write advertisements urging tourists to travel to an unlikely "resort." For example,

to the moon
to the lost island of Atlantis
to the future in a time capsule
to an unknown galaxy

These ads should use descriptive language and could be illus-

trated to interest prospective travelers in the journey.

—Have pupils make a tape of familiar sounds heard around the house, classroom, playground, or neighborhood. This tape can then be used as the stimulus for a story that includes all the sounds. The story itself might be tape recorded, inserting the "sound effects" where appropriate.

—Have pupils read or listen to a variety of language patterns in poetry and literature. After sufficient exposure to a pattern, pupils can be encouraged to write original works emulating that pattern.

Pattern	*Sample Selection*
alphabet pattern	*The Amorphous Octopus*
enumeration	*The 12 Jugglers*
rhyming words	*Raccoon on the Moon*
verbs	*Ish Time*
repetitive sentences	*I Like*
sentence elaboration	*What X-actly Did You Zee?*

A very thorough listing of language patterns and literary sources is found in *Language Experience Activities* by Roach Van Allen and Claryce Allen. This and the activities that follow would be valuable introductory experiences to translating poetry and stories from other cultures.

—Have pupils select an old favorite nursery rhyme and rewrite it. for example,

> Sarah saw a little goat;
> It's head was horned and furry.
> When Sarah went to cross the field
> She really had to scurry!

Another variation would be to write new lyrics to an old familiar song. For example,

> "Row, row, row your boat" would become "Ride, ride, ride your bike."

—Have pupils read several Tall Tales and list the exaggerations they remember. Then have them write their own tall tales. The results might be made into an illustrated booklet, a story tape, or entered in a Tall Tale Telling contest.

—Have pupils read the *Just-So Stories* by Rudyard Kipling. Then ask them to create their own stories explaining why something is. For example,

Why Cats Purr
Why the Ladybug Has Spots
Why Rain Is Wet

—Have pupils select descriptive titles of books that they have *not* read from a book list or from the library card catalog. Have them write a story that goes along with the title. When they read the book, they can compare its plot with the one they have devised. Younger pupils might do this activity using story titles rather than full-length books.

—Have pupils write in diary form the experiences of a main character in a story they have read. Entries can be restricted to main ideas and the major sequence of events, or they can be reflective in nature, showing how the character would feel about the events and other people in the story or novel. The diary should be written in first-person format, from the character's point of view.

—Have pupils read examples of the Diamente form of poetry, analyze its structure, and write Diamente poems of their own. The Diamente form is as follows:

Line 1—One noun, the subject of the poem
Line 2—Two adjectives describing the subject
Line 3—Three participles telling about the subject
Line 4—Four nouns related to the subject
Line 5—Three participles
Line 6—Two adjectives
Line 7—One noun that is the opposite of the subject

For example:

Summer
Breezy, lazy
Swimming, sunning, boating
Grass, sand, fruit, leaves
Raking, burning, harvesting
Cool, energetic
Autumn

—Have pupils read examples of the Cinquain form of poetry, analyze its structure, and write Cinquain poems of their own. The Cinquain form is as follows:

Line 1—One word, the title
Line 2—Two words describing the title (adjectives)
Line 3—Three action words (verbs)

Line 4—Four words expressing feeling
Line 5—One word, a synonym for the title

For example:

Baby
Winsome, Appealing
Creeping, Crawling, Cooing
Comfort, Love, Safety, Warmth
Dependent

—Have pupils experiment with poetry using many different forms of writing. The best works should be collected in a booklet that might be illustrated and shared with classmates and friends or given to parents as a special gift. Among the types of poetry appropriate for elementary level writing are Haiku, Diamente, Cinquain, limericks, free verse, and standard verse.

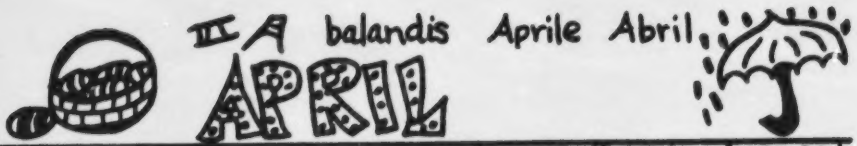
Sample Integrating Lesson—Reading and Language Arts

The following activity illustrates how a teacher may bring together a variety of language skills and activities from the areas of vocabulary, nature of language, writing, literary appreciation, and listening and oral expression. There are undoubtedly many other ideas that teachers might include in this activity.

"Multicultural Day"

Pupils plan and carry out a Multicultural Day (somewhat like a folk festival) in which the following activities might be included. Pupils can learn some words or phrases in other cultures and study how these words are similar to and different from English. They can learn the names of some national foods and articles of clothing. Some national dishes might be prepared, and a recipe book can be compiled. Costumes might be displayed or modeled or shown in drawings. Some students might choose to study popular first names in other languages and match these names with their English counterparts. Unusual international place names would be another area for possible investigation.

Pupils can research and write factually-based stories or reports about various aspects of the countries that are represented by people in their community. Members of each nationality group might be interviewed in class or using



SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4 Dr. Martin Luther King Assassinated 1968 ○	5 Chinese Ancestor Day	6	7 Toussaint L'Ouverture Died
Palm Sunday "Verbos" 8	9	10	11	○ 12 First Day of Passover — Maundy Thursday	13 Good Friday	14 Holy Saturday — Day of Juda
Easter Sunday — Albanian Orthodox Palm Sunday 15	Irish Independence Day — John Millington Synge B'day 16	Jose de Diego's Birthday 17	Ireland declared a Republic 18	19 ○	Albanian Orthodox Good Friday 20	21
Albanian Orthodox Easter 22	23	The Easter Rising (Irish) 24	Italian Liberation Day — St. Mark's Day 25	● 26	27	28
Duke Ellington's Birthday 29	30		○ FIRST QUARTER MOON	○ FULL MOON	○ LAST QUARTER MOON	● NEW MOON

This calendar is the result of a collaborative project involving the Bureau of Equal Educational Opportunity, State of Massachusetts, Department of Education; the Office of the District VI Superintendent; the District VI Multicultural Resource Center; the Institute for Learning and Teaching at the University of Massachusetts/Boston; and the cultural community representatives, students and teachers from Boston's District VI. The calendar is intended to be representative of the various cultural groups in Boston's School District VI.

It is not intended to be all inclusive, but to generate interest in multicultural education.

tape recorders or videotape equipment if a live interview cannot be arranged. Biographies of famous people from other lands can be researched and written. The specific literature associated with each country (Japanese Haiku poetry, African folktales) can be read and presented through oral interpretation or dramatics.

The Multicultural Day might feature a series of booths or tables displaying articles, visual materials, pupil-prepared booklets, drawings, models, etc. Dramatic presentations as well as oral presentations involving demonstrations and descriptions (for example, a costume fashion show, a "how to" crafts demonstration, folk dancing and singing) can be scheduled at various times during the day.

This integrating activity can be undertaken by pupils in a single class or can be developed as an all-school project to which parents and other visitors could be invited.

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SOCIAL STUDIES ACTIVITIES FOR GIFTED AND TALENTED PUPILS

Current social studies curricula include materials from a variety of disciplines. Activities relating to geography, history, sociology, economics, and anthropology are included in this section. Research, mapreading, and mapmaking are the basic skills stressed. Gifted individuals should be encouraged to apply these skills in their quest to produce quality work. (See Chapter 3 of *Program Design and Development for Gifted and Talented Students* for more information about the Enrichment Triad.) As with the other activities presented in this text, the ideas suggested here should be modified and incorporated into a continuous instructional program, with one activity leading to another under a general theme or unit. The "Sample Integrating Lesson" at the end of this section illustrates how these suggestions can be incorporated.

Activities for Primary Level (K–Gr. 3 or 4)

—For each month of the year that school is in session, have pupils make a calendar showing famous birthdays and famous events in history. This could become a multicultural calendar, as a variety of cultures may be represented through the birthdays and events. The Institute for Learning and Teaching at the University of Massachusetts has worked with elementary schools in Boston to develop a series of these calendars.[4] A variation would be to present a monthly skit covering the same information in a creative dramatics format.

—Have pupils read about famous people, then write a cumulative chronology chart that compares and contrasts their lives. Sample format might be as follows:

Famous Person	*Life Span* (date of birth–date of death)	*Major Accomplishment(s)*

—Prior to or immediately following a trip to the zoo, have pupils research the land of origin of the animals seen

4. Institute for Learning and Teaching, University of Massachusetts at Boston, Dorchester, Massachusetts 02125.

there. Results should be put on a world map. Students can present a brief report (in oral or written form) giving important and interesting facts about each animal.

—Have pupils make a collection of different types of maps (road map, physical features map, weather map, outline map). Have them describe what each map is used for and how to use it.

—Have pupils devise as many ways as they can to show the location of their home or school within their city or town. Flat maps, miniature scale models, verbal descriptions, and use of street addresses can be included.

—Have pupils consult the schedule of their favorite professional sports team to plot on a map all their away games. Have pupils plot each trip and number it. They can examine the map to formulate and answer questions such as the following:

> What is the furthest city to which the team travels? How many states does the team travel to? Does the team go outside the United States? What is the furthest point West (East, North, South) the team travels? etc.

—Have pupils select a famous event in history and write a headline to describe it. They might write a complete news story to accompany their headline.

—Have pupils select any common object (pencil, flowerpot, etc.) and do the following activity with that object:

- Find a new use for it.
- Draw it in a different form. (For example, draw a new kind of pencil.)
- Substitute something for it. (For example, you could use a tin can as a flowerpot.)

—Have pupils think about how people use their leisure time by listing as many leisure activities as they can. They can also enumerate the advantages and disadvantages of these leisure activities. Then have pupils develop two collages around this idea—one to show individual leisure time activities and one to show group activities. Some pupils could extend this exercise by showing the relationship between cultural conditions (e.g., values, technology, etc.) and the leisure activities.

—Have pupils investigate common greetings (hi, hello, good morning, etc.) in other languages. These greetings

might be listed in chart form or used to make original greeting cards. One group of gifted and talented pupils designed and wrote specialized greeting cards (e.g., home sick from school) and made arrangements with a local stationery store to display and sell them through the store.

—Have pupils research their "family tree" to find out the complete family names of parents, grandparents, great-grandparents, etc. This information can then be used to make a family tree diagram. Some pupils may want to add additional information on their ancestors' birthplaces, occupations, migrations, and so on. Much of this information can usually be obtained by interviewing relatives.

Activities for Intermediate Level (Gr. 4–6)

—Have pupils investigate what languages are spoken in the world today and where they are spoken. The results of this research can be shown on a world map. This activity might lead to a study of "dead" languages (those no longer spoken) and of the family tree of language. (A good source book for children interested in this topic is *The Tree of Language* by Charlton and Helene Laird.)

—Have pupils compare a news story with an editorial on the same issue or topic. A comparison of news items as presented through different media (newspaper, radio, and television) is valuable. The radio and television presentations could be audio- and videotaped to permit deeper analysis of vocabulary, visuals, voices, and surrounding news items. Two variations would be to have pupils write a letter to the editor after reading the news story and the corresponding editorial, or to write another editorial taking the opposite point of view.

—Have pupils follow a personality who is in the news for several weeks. They must follow radio, television, newspaper, and news magazine coverage and keep a folder of information on the person. At the end of this period of information gathering, the student can present a summary report using graphics.

—Have pupils read current newspapers and cut out articles that deal with age-old problems such as food, housing, government, safety, education. These articles can be examined to see how our modern problems are similar to

and different from past versions of the same problems.

—Have pupils hold a mock press conference with a figure or figures currently in the news or a famous person from the past. The interviewer(s) must prepare relevant questions, and the person(s) being interviewed must be prepared to answer the questions (which may or may not be known in advance). This activity can also be done in a "Meet the Press" format, where one figure is questioned by several reporters.

—On completing a unit of study, have pupils make up their own test. They should construct items of different types to cover the important material in the unit. Some pupils might construct an entire test by themselves, or many items can be "pooled" to result in the test that all pupils take. (This activity can be adapted for other content areas also.)

—Have pupils photograph landmarks in the community and use these photos to construct a photo map. This activity could be extended by using these photographs as a starting point for more in-depth research on community history. The results of the research could be presented as a written report or oral presentation, or pupils could write a pageant or develop a series of skits on local history or local "names" in history.

—Have pupils select an object from a grab bag containing common objects such as pencils, scissors, spoon, stapler, etc. They must plan a way to improve their object, then describe the improvement orally or with a drawing. For example, a student could design a stapler that includes a staple remover.

—Have pupils collect a variety of containers—cans, egg cartons, bottles, cosmetic containers. They must study the containers and the products they contain, then design a new container for one of the products.

—Have pupils collect political cartoons, write a brief analysis of what point each cartoon is trying to make, and decide whether or not the cartoon is effective. Pupils might also try their hand at an original political cartoon.

—Have pupils role-play an interview for a job advertised in the newspaper. The interviewer must research what skills, training, and experience the job requires, and

the interviewee must research how to respond in the interview situation. A variation would be to have pupils write a letter in which they apply for an advertised position.

—Have pupils organize a career exploration unit in which they bring together a panel of community workers from different careers. As an alternative, students can locate appropriate films and/or books to share with the class. For each career studied, students should examine required job skills, work involved, pay scale, risks, and positive factors.

—Have pupils develop a file of Resource Persons in the community or school who would be available to speak to school groups. The following information should be included:

1. Person's name, address, and phone number
2. Area of interest or expertise (geology, Mexico, making miniatures)
3. Time available
4. Why this information would be valuable to the class.

Once a file is begun, students could set up a series of Special Interest Sessions and recruit other pupils, teachers, and/or resource people from the community as leaders or demonstrators. For example, a session could focus on:

Planting a vegetable garden
How the town government works
Bookbinding

—Have pupils assess needs around the school and make a list of "public service" projects their class might perform. Students then select one or more of these projects and organize their class into action.

—Have pupils become involved in the political process by writing to members of Congress or petitioning Congressional representatives on issues of local importance. Students can also follow local and national elections and set up a school or classroom government system with elected officials who have clearly defined responsibilities.

—Have pupils serve as consumer reporters by comparing various products that are of interest to them (bikes, skateboards, bubble gum, etc.). Students can gather information on price, durability, quality, etc., before comparisons are made. Results should be shared in oral or written form, possibly resulting in a Classroom Consumers' Guide.

—Have students become aware of a current issue in conservation or environmental science. A few individuals in a fourth-grade class became interested in the problem of saving the whales. As a result, they studied the whale in depth, wrote various organizations (such as Greenpeace) for information, conducted fund-raising activities, wrote specific ambassadors and legislators, and conducted classes on whales and whaling industry past and present throughout the school.

—Have pupils produce a slide/tape presentation on a topic of interest (for example, a presentation of historical sites in the area or of types of flowers and trees indigenous to the area). Pupils can use already prepared commercial slides or can take their own slides. Students can write appropriate narration and tape it, keying the narration to each slide.

—Have pupils participate in an archaeology simulation. They are shown objects representative of a civilization and must reconstruct what that civilization was like based on this evidence. A variation would be to have pupils assemble the objects representative of a past civilization. This would involve models, pictures, photographs, and actual artifacts of the civilization. As a culminating activity for this archaeological study, pupils could create a culture on an imaginary island. In doing this they should cite physical characteristics of the setting and develop cultural and technological aspects that relate to the physical environment. They could read excerpts from scientific texts or from literature (such as James Michener's *Hawaii*) for ideas.

After reading about the Tutankahmen exhibits, some pupils decided to study ancient Egypt in greater depth. Their projects ranged from reconstructions and explanations of tombs to actual mummification of rodents with accompanying explanations of how and why the dead were mummified.

Activities for All Elementary Levels

—Have pupils make a list of all the things in their classroom or in their house that are either partly or completely made outside the United States. A world map might be used in this activity. Some pupils could extend this activity by

tracing trade routes or by illustrating the balance of trade among several countries.

—Have pupils make a list of all the changes they can remember having taken place in transportation, communication, entertainment, education, and clothing styles. This activity can be extended by asking students to talk with parents and grandparents about the changes they have seen during their lives. Pupils could then read about technological and social changes that have occurred during each generation, comparing the types and number of changes that have taken place. Using this information, they may form hypotheses about changes likely to occur in the next twenty years.

—Have pupils research their community to see how it has changed over the years. Sources of information might include old city directories, maps, materials in the local museum and archives, and materials belonging to private citizens. Pupils can report findings in a graphic presentation using slides, maps, and drawings. A variation or supplement to this activity might be to investigate local superstitions. Almost every town has at least one haunted house, bridge, etc.

—Have pupils research coats of arms, then design their own personal or family coat of arms. They could study the use of symbols and colors in coats of arms so that their own design reflects specific family characteristics or events. For variety, students can conduct research on the flags of different countries and states. This research should focus on symbols, slogans, colors, and pertinent histories. As a follow-up, students can design their own personal flags.

—Have pupils compile a cumulative list of famous people who have had inventions (or other things) named for them. This list of names should be accompanied by descriptions of the inventions and their impact. For example,

Louis Pasteur—pasteurization process for milk
J. R. Poinsett—Poinsettia plant
Zebulon Pike—Pike's Peak in Colorado

—Have pupils use a United States map or atlas to research place names such as the following:

1. Places named after U.S. Presidents
   (Lincoln, Nebraska)

2. Places named after famous Americans (Clinton, New York)
3. Places named after cities in other countries (Moscow, Idaho)
4. Places named after other countries (Peru, Indiana)
5. Places named after natural features (Mammoth Cave, Kentucky)
6. Places with funny or unusual names (Due West, South Carolina; Oshkosh, Wisconsin)

—Have pupils "write their own ticket" to anywhere in the world. Before describing the trip, pupils should provide background information about the place. Then they must plan how to get there, what items to take with them, what to see and do, what unusual finds or good bargains they might bring back, etc. Travel folders, an atlas, encyclopedias, and other resources may be used. As a result of this activity, pupils might develop a trip album.

—Have pupils create a model land with as many landforms as possible (mountains, valley, bay, ocean, peninsula, islands, etc.). This model may be drawn or constructed in clay. Then have pupils choose the best place on the land for settlement, explaining their reasons for the choice. This exercise could be combined with the imaginary island exercise on page 49.

—Have pupils use latitude and longitude lines to plot the location of cities, rivers, mountains, etc. Students can list the latitude and longitude readings for each location and exchange their lists for other pupils to work out. For example,

Vacation spots like Disneyland or Yellowstone Park
State capitals
Towns with unusual names
Historical sites

A state, United States, or world map may be used for this activity. A variation would be to have pupils "translate" a trip itinerary given in longitude and latitude readings by finding the destinations on a map or globe.

—Have pupils choose a famous person from the past and write a story telling how that person would react to the twentieth century or to specific current events. For example,

how would the Wright Brothers react after visiting the Space Shuttle project? A variation would be to have pupils assume the identity of famous persons from the past. They can then conduct a panel discussion relating their reactions to modern times and events.

—Have pupils report on how life would be different in the United States today if, for example,

England had won the Revolutionary War
Slavery had not been abolished
Germany or Japan had won World War II
The United States owned most of the world's oil reserves.

—Using copies of old social studies or science textbooks, have pupils select a unit and read it for inaccuracies in content. Pupils might compare the old textbook with a contemporary textbook. Students should become aware that factual material does not always remain accurate because we are constantly gaining new information to update or contradict the old facts.

—Have pupils participate in a debate on a current issue, such as whether nuclear energy plants should continue to be constructed in the United States. Assign topics and pro and con sides and allow pupils time to research the topic and develop their arguments. Students can hold the debate before an audience.

—Have pupils make a time capsule for a specific year or era. Pupils must do research to find out what happened that that was important or interesting, and then select articles that best represent the events and feeling of the time. If a whole series of time capsules are developed, they can be displayed and pupils can be encouraged to guess the year each capsule is intended to represent. A variation would be to make a time capsule for the current year and bury it on the school grounds, leaving instructions indicating where it is and when it is to be dug up.

—Have pupils describe in words or pictures an invention of the future.

—Have pupils design their "ideal home" of the future. Students should make a floor plan and an exterior drawing. A variation would be to ask pupils to design the ideal classroom or school.

Sample Integrating Lesson—Social Studies

"You Are There"

An integrating activity that brings together various skills and interest areas would be the preparation of a series of audio tapes, videotapes or slide/tape programs relating to social studies topics. These materials would be prepared for presentation to an audience of pupils and/or parents. The "You Are There" theme provides a good vehicle for both research and presentation.

The topic "Our School" might be the focus of one presentation. School history could be investigated, including when the building was erected, why the site was chosen, who or what the school is named for, and a chronology of interesting events associated with the school. Students could include interviews with and brief biographical sketches of present and past school administrators and faculty, famous alumni, etc. Maps and other visuals (drawings, photos, models) showing how the school plant and program have changed and a display of school "memorabilia" are other possibilities. This activity could be undertaken by young or older pupils and might be expanded into a longer presentation on "Our Community."

Another "You Are There" program might deal with popular sports in different countries of the world. This presentation could include a report on the results of research into different kinds of sports and unusual sports. Students can compare different sports (football in the U.S. vs. soccer in Latin America and Western Europe; baseball in the U.S. vs. cricket in Great Britain) and sports terminology. They can research sports equipment, male/female participation, and spectator vs. active participation sports. Illustrative materials and maps could be incorporated, and students might decide to conduct mock interviews with famous sports figures. The Olympics are another related topic.

Other possible program themes include local elections; a specific event in local, American, or world history (for example, the Boston Tea Party); famous inventors; prominent women; a travelogue for a suggested vacation trip; and so on.

As each program is completed, it can be shown to other

classes and/or to parents. It is also possible to plan to show the entire series of programs in one special presentation, perhaps at the end of the school year.

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MATH ACTIVITIES FOR GIFTED AND TALENTED PUPILS

Some gifted pupils are accelerated in mathematics by working with materials at higher grade levels. Others, however, do not have this opportunity and remain at their own grade level working with materials that may be below their ability. However, teachers can adapt these grade-level materials to meet the needs of their pupils. A variety of curricular areas relating to modern elementary mathematics are included in the following activities—including weights and measures, graphing, estimation, and "consumer math."

Activities for Primary Level (K–Gr. 3 or 4)

—Have pupils make a collage composed of numbers cut from newspapers or magazines. These numbers should represent the variety of ways in which numbers are used every day—in prices, sizes, to represent population figures, percentages, temperatures, etc. The collage can be an individual or group endeavor and may be developed over a period of time.

—Have pupils note the mileage as they travel to and from school by bus or car. They can then compute the cumulative distance they travel during a week, a month, or the whole school year. The distance traveled on school trips could be added to the final total. Time and expense involved in travel (for example, the cost of gasoline) could also be computed.

—Have pupils write "formula sentences" that do not involve numbers but rather use sensory observations. For example,

If you add green eyes to a small furry body, you get a kitten.

or

green eyes
+ small furry body
kitten

—Have pupils make a secret code in which the numbers on the telephone dial also represent the letters grouped with that number. Students can write messages to friends in this secret code.

—Have pupils use newspaper grocery ads to plan three days of family food shopping. They must plan three meals for each day, listing the items needed, price of each item, and

the total amount spent. (Perhaps the class could plan a trip to the supermarket to check prices.) A variation would be to plan family meals for an entire week. Pupils can compare the cost of feeding a large family with the cost of feeding a smaller group. (Don't forget to include pets as "family"!) One group of first graders compared the cost of buying lunch in school with the cost of bringing lunch.

—Have pupils record on a graph the outside temperature each day for a set period of time. This data can then be compared with the day's high and low temperatures as reported on the TV weather show or in the daily newspaper. At the end of each week pupils can use their graphs to compute the average temperature, the temperature range, and perhaps even the median temperature. A variation would be to compare local temperature findings with those in another city or cities (often mentioned on the TV weather program or in the newspaper weather section).

—Have pupils make a circle graph showing how they spent their time on a given day, or have them graph how they plan to spend their weekend time. For example, students could indicate time spent playing outdoors, eating, practicing the piano, watching TV, etc.

—During baseball season have pupils keep a cumulative graph of their favorite player's batting average for several weeks. A variation would be to graph the batting averages of several players and compare their progress. This activity could of course be modified to accommodate different interests and seasons.

—Have pupils do "market research" by polling their friends to find out their favorite food, favorite color, what pets they own, where parents work, etc. Responses can be graphed using bar, circle, or picture graphs.

—Have pupils choose an object to measure, then express its measurements in as many ways as possible. For example,

My desk is 28 inches long.
My desk is 65 centimeters long.
My desk is 32 paper clips long.
My desk is 16 palms long.
My desk is 8 scissors long.
etc.

A variation would be to have pupils design their own unit of

measure, defining it and naming it. For example,

My desk is 4 pukas long.
1 puka = 7 inches.

—Have pupils measure the length of their stride in meters by marking off several steps with chalk and measuring the distance with a meter stick. Compare results with other pupils, with the distance across the room, around the playground, etc.

—Have pupils make a package of powdered drink (Tang or Kool-Aid) to figure out its weight with and without water, how many people it will serve, how much one serving costs, how the cost per ounce compares with the cost of one ounce of a different beverage (cola, milk, or frozen lemonade), etc. This activity could be extended by comparing relative sugar content, nutritional value, and calories. On the basis of these factors, pupils could choose the best drink.

—Have pupils examine several brands of chocolate chip cookies to find the variation in the number of chocolate chips per cookie. (They will have to count the chips as they eat the cookies.) Then have students compute the average number of chips per cookie and estimate the number of chocolate chips in an entire bag.

—Have pupils accurately weigh 50 grams or less of unpopped popcorn. Record the exact weight. After the popcorn has been popped, weigh it again and record the results. Compare the two figures and ask pupils to explain what accounts for the difference.

Activities for Intermediate Level (Gr. 4–6)

—Have pupils make original Number Books for younger children. These might be Counting Books for preschoolers or kindergarteners, or books with simple math problems for grades 1-3. The books should be illustrated and bound in a sturdy fashion.

—Have pupils investigate different monetary systems. They can chart the American equivalence of currency from different countries. A display might be set up exhibiting some foreign coins and bills. Some pupils could extend this activity by graphing relative values of a foreign currency and the U.S. dollar, marking weekly changes for several months. If these changes are compared with other measures

of economic growth, such as the stock market, pupils may be able to draw conclusions and make predictions about economic conditions.

—Have pupils keep a simulated checkbook in which they have a given amount of money deposited and must pay out for certain things they need or want. A different variation would be a credit card simulation; charges are made and a final bill is rendered. (Both of these activities are described in detail in *Plus* by Mary E. Platts.)

—Have pupils count the blades of grass in one square foot of lawn, then measure their yard or the playground and estimate the total number of blades of grass contained in that area.

—Have pupils plan a trip from their hometown to some distant city. They can compute the number of miles to travel and amount of time an auto trip would involve. They might check plane, bus, and possibly train schedules to decide on the best means of travel in terms of time. Cost can be figured by calculating gasoline expense and comparing this to round-trip fares for the other modes of travel.

—Have pupils estimate the time and cost of their school field trips, taking into consideration the need to stay within the speed limit, time for rest stops, cost of gas, food, and admissions to special events or sites. Ask students to devise a plan to reduce costs.

—Have pupils assign a numerical point value to each letter of the alphabet (for example, A = 1 or 26, B = 2 or 25, etc.). Have them use this system to write and solve problems. For example,

Write a sentence totalling 100 points.

What is the total of your entire name?

What animal has the highest possible point value?

—Have pupils multiply using Roman numerals. Check by multiplying in the usual way. For example,

	Check
XV	15
× III	× 3
XV	45
XV	
XV	

XXVXVV = XLV

—Have pupils draw a scale map of the classroom or a room at home. In order to do this, students must make accurate measurements of the actual room, then bring these measurements down to scale for the drawing.

—Have students research the present calendar (Gregorian) and previous calendars (Julian). Then have pupils create a new calendar so that there is no leap year and all months are the same length.

—Have pupils put TV shows into several categories (news, situation comedy, variety, quiz, etc.). Then use a television guide or schedule to compute the number of shows of each type, the number of minutes of viewing for each type, the percentage of the total number of shows for each type, and the percentage of programming between 4 P.M. and 10 P.M. for each type. Pupils might also figure what percentage of each type of show *they* watch. A variation would be to have pupils watch TV for an hour, record the length of all commercials and other announcements, and compute what percentage of the TV hour is used for non-entertainment purposes.

—Have pupils choose five stocks from the New York Stock Exchange and watch them for a week. Students can chart daily progress for each stock, and at the end of the week pupils can decide which stocks to keep and which to "sell." A variation would be to have each pupil "invest" $5000 in the stock market by choosing stocks worth that amount. Students then keep a daily record of their stocks' progress. At the end of two weeks, the stocks are "sold" and pupils can see how much money they made or lost.

—Have pupils make a chart on which they estimate the length, width, area, etc., of a number of things in the environment. Then record the actual measurements and see how close the estimates were. For example,

Item: my nose
Unit: centimeter
My Estimate: 2.5
Actual Measure: 2.0
How Close I Came: 0.5 too large

—Have students convert measurements. For example, they can convert temperatures from Fahrenheit to Celsius

and also can convert recipes and distances to metric.

—Have pupils use the real estate section of the newspaper to find the average cost per acre of lots in a rural area and the average cost per acre of waterfront lots or city lots. Have them discuss why one kind of property might be more expensive than another.

—Have pupils experiment with probability by having them flip a coin ten times and keep track of the number of times heads or tails come up. For example,

Heads = 4 *Tails* = 5

Have them repeat the exercise, flipping the coin 100 times to see what occurs.

Heads = 55 *Tails* = 45

Probability is 50/50 that the coin will come up heads in any single flip. Experiments with probability can be used to test extrasensory perception as well. For example, have students guess the number and suit of playing cards and then compare the number of correct guesses with that which could be expected by chance.

Activities for All Elementary Levels

—Have each pupil make an abacus, using wire, wooden or plastic beads, and a wooden or heavy cardboard frame. Pupils should investigate the history of the abacus and learn how it works.

—Have pupils solve math problems in which the answer is given but part of the facts are missing. For example,

$$\begin{array}{r} 1? \\ 31 \\ +\ ?1 \\ \hline 99 \end{array} \qquad \begin{array}{r} ?6 \\ -\ 5? \\ \hline 32 \end{array}$$

—Have pupils categorize a variety of word problems (written on index cards) according to the mathematical operations required to solve them.

—Have pupils write as many different word problems as they can using the same set of information. For example,

(*Information given:* 12 puppies; 6 brown, 5 white, and 1 spotted.)

If a litter has 12 puppies, with 6 brown and 1 spotted, how many of the puppies are white?

If a litter of 12 puppies is 1/6 brown and 1/2 spotted, what fraction of the litter is white?

—Have pupils write original math word problems using the names and activities of their friends. Pupils can write these problems on index cards with answers on the back, and add them to a Math Problems File. Some pupils may want to develop their own individual file or write their own Math Problems Book.

—Have pupil pairs take turns constructing a verbal math problem. At any point either player can state the question and answer it to gain a point. Extra "facts" can be added by a player during a turn, but a player can be challenged to state the question and answer it correctly at any time by his/her opponent.

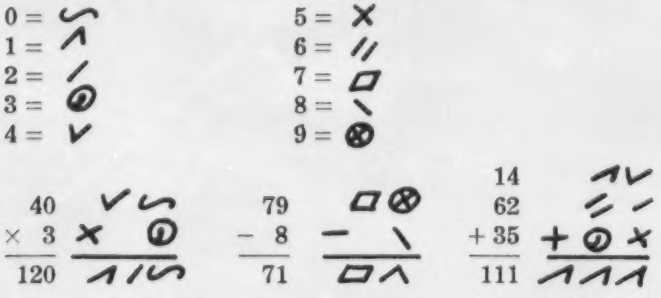
—Have pupils create math problems based on information in the newspaper. These can be added to a Math Problems File or made into individual booklets. For example, problems can be based on the stock market quotations, real estate section, weather report section, or sports pages.

—Have pupils make up math jokes or riddles. For example,

Q. Which would you rather have fall on you—a ton of bricks or a ton of feathers?
A. Neither. Each would weigh 2000 pounds!

The jokes or riddles can be put into booklets or used for a Math Fun dialogue, incorporating dramatics and speech skills.

—Have pupils develop a number code and use it for writing and solving math problems. For example,



—Have pupils complete number sequences such as the following:

23, ____, 27, 29, ____
80, 71, ____, 53, ____, ____
3,201, ____, ____, 3,204, ____

A variation would be to have pupils make up their own number sequences in which numbers are consistently increased, decreased, multiplied, or divided by the same number.

—Have pupils play Tic-Tac-Toe a new way, using numbers instead of X's and O's. One player uses the odd numbers 1 through 9 and the other player uses the even numbers 2 through 10. The object is to complete a horizontal, vertical, or diagonal row that adds up to *15*. Players cannot use a number more than once in a game.

—Have pupils write numbers as many different ways as they can. For example,

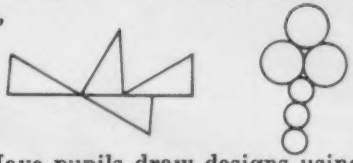
2 equals:

1 + 1	36 − 34
two	II
4 ÷ 2	100 ÷ 50
4 − 2	3 + (−1)

—Have pupils use the weekly grocery ads in the newspaper to compare prices on a list of specific food items at three to four different stores. Pupils must tell which items are "bargains" that week, and why.

—Have pupils use the information shown on one graph to make a different type of graph. For example, a pie graph shows the number of baseball games won, lost, and tied. Pupils could convert this information to a bar graph format.

—Have pupils make repeated patterns of geometric designs using circles, triangles, squares, hexagons, etc. For example,



—Have pupils draw designs using different geometric shapes. They then color the interior of the shapes without using the same color in any two adjoining areas.

—Have pupils design a geometric quilt pattern. They might want to look at some traditional quilt patterns before designing their own. As a final activity, a group of students could actually make the quilt (a good long-term project) or draw a full-size color reproduction of the pattern.

—Have pupils make up and solve Magic Squares in which all the sums must be equal. For example,

6	4
4	6

—Have pupils research United States time zones, daylight saving time, Greenwich time, and the international date line. They should give specific examples of how each of these affects our use of time in calculation. Their findings could be used as part of a short story involving extensive travel, or pupils could estimate ways one could "beat" time by moving from one time zone to another. In the latter activity, pupils should take into consideration travel speed as well as clock time. A variation would be to research different types of clocks and timepieces. A classroom exhibit might include a homemade sundial, a water clock, and a candle clock. (*Plus*, by Mary E. Platts, has several suggestions on how to build homemade timepieces.)

—Have pupils use pocket calculators to play math games. A variety of paperback books presently on the market include such games. (One example is *The Calculating Book: Fun and Games with Your Pocket Calculator* by James T. Rogers.) Some pupils may want to devise original games.

Sample Integrating Lesson—Math

"The Classroom Store"

It is possible to integrate a wide variety of math skills and activities through the development of a classroom store or functioning business. For younger pupils this might be a real store that features a single item (such as pencils), or it might be a "mock" store (such as a grocery or variety store in which real items are not actually sold). Older pupils might develop an actual business in which they sell school supplies or recreational items (games, toys, etc.). They might possibly manufacture *and* sell the items.

Pupils can plan and build an actual store, either in the classroom, in the hallway, or elsewhere. They must acquire inventory and "mark it up" for sale. Pupils will have to calculate a profit margin based on the amount of markup. Sometimes items might have to go "on sale" in order to clear them, resulting in a reduction of profit. Students should be made aware of the importance of fair and competitive pricing, and they can compare the class store's prices with prices in the local variety store, for example.

Once the store is open for business, the items have to be priced and an advertising campaign must be developed and carried out. Merchandise should be displayed attractively. It will be necessary to handle money and make change, use a "cash register" (possibly a calculator or abacus), and keep track of profits. (Play money or another token currency might be substituted for real money.) A bookkeeping system must be organized, and there might be "wages" paid to "store employees." Older pupils can pursue the idea of selling "stock" in their business.

The Class Store activity can be developed on a large or small scale. It could be an ongoing activity lasting an entire school year, or it might be a short-term endeavor for one unit. Much depends on the individual school and classroom situation.

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SCIENCE ACTIVITIES FOR GIFTED AND TALENTED PUPILS

In science, as in other areas of the curriculum, gifted individuals are able to perform at higher cognitive levels and able to conduct original investigations. A discovery approach to science teaching is especially important for such students. The activities suggested here touch on several areas of science, including nature study, ecology, meteorology, astronomy, electricity and magnetism, and conservation of natural resources. All these activities are geared for a very high level of student involvement. Again, the teacher should try to coordinate the activities so that the pupil works within an integrated, developmental curriculum. The "Solar Fair" lesson at the end of this section demonstrates how several activities can be integrated.

Activities for Primary Level (K–Gr. 3 or 4)

—Have pupils perform simple experiments on their own and report them using the following format:

My Experiment

My Idea:
What I Used:
What I Did:
What Happened:

—Have pupils answer the following questions, giving as many reasons to support their answers as possible: Which of your five senses do you think is the most important? Why? (Answers can be given as a written or oral response.)

—Have pupils collect a variety of natural objects from around the playground, at home, or on a nature hike. Objects should be sorted into categories with at least three objects in each category. Pupils can then examine the objects and give the characteristics common to each category. For example,

cocoon, empty bird's nest, shell—all are homes

—Have pupils "recycle" old cans, bottles, bags, etc., by building something functional from them. Students could, for example, make pencil holders from soft drink cans. Pupils should also discuss the advantages of recycling these

discarded items rather than simply disposing of them.

—Have pupils go on a scavenger hunt to find examples of simple machines at home, at school, or outdoors. See who can make the longest list. A variation would be to find different types of plants and animals, or rocks and minerals. Real samples or pictures of samples can be brought in at the end of the hunt. Pupils should form hypotheses on the basis of their findings and then test their hypotheses by looking at more samples.

—Have pupils experiment with bubble blowing to see what soap solution makes the best bubbles, whether bubbles other than round-shaped ones can be blown, how many bubbles can be blown at once, etc. Results can be recorded by each pupil and hypotheses can be formulated by small groups or by the class.

—Have pupils find out the state bird, flower, and tree for each of the fifty states. The resulting information can be put on a poster or chart or in a booket.

—Have pupils collect abandoned birds' nests. These can be taken apart and students can list the different types of materials used and the number of separate pieces used. Pupils might try to reassemble the nests in their original form. To extend this activity, pupils could study the nests and develop hypotheses about the kinds of nests different birds build.

—Have pupils make a Tree Census of the school grounds, their neighborhood, or a park. Record the number and kinds of different trees found. Tree "samples" (leaves, bark, seeds, twigs) may be gathered to help in identification. Pupils can make a tree book or tree chart to show the results of the census.

—Have pupils make texture rubbings from nature (tree trunks, leaves, rocks, flowers) using paper and crayons. These rubbings may be used for decorative purposes and can be described in sensory terms (rough, bumpy, grainy, etc.)

—After observing the night sky or visiting a planetarium, have pupils draw their own constellation, name it, and construct a myth about it. This activity lends itself well to integration with the literary study of mythology.

—Have pupils investigate superstitions about the

weather, and do some research to find out where these superstitions originated. Are they valid? For example,

> Red sky at night, sailors' delight.
> Red sky at morning, sailors take warning.

> If there is enough blue in the sky to make a pair of Dutchman's breeches, it won't rain.

Activities for Intermediate Level (Gr. 4–6)

—Have pupils design and carry out original experiments using the scientific method, involving forming and testing a hypothesis and using controls. Pupils might first prepare a research proposal describing the question to be investigated, the hypothesis, the plan for testing it, and needed materials. After the proposal is approved by the teacher, pupils can conduct their experiments and report results. Research questions can cover a multitude of topics. For example,

> Can plants grow under black light?

> If animals (such as gerbils, mice, hamsters, frogs) are given unlimited amounts of food, will they be overweight?

—Have pupils design and possibly build a maze or other device for an animal (gerbil, hamster, etc.) in which the animal must learn to do something. This project might be researched so that pupils could draw conclusions about relative learning rates of different animals.

—Have pupils organize a recycling center for the school or community. This involves finding out where recycled materials (such as paper and aluminum) are needed and setting up a schedule for collecting them. Part of the students' effort should entail disseminating information about the value of recycling particular kinds of materials and the potential impact that lack of recycling might have on the community.

—Have pupils make a "cloud collection" by photographing interesting skies and identifying the cloud formations present.

—Have pupils draw a food web or chain, then remove one link from this chain and ask them to describe and/or illustrate what would happen.

—Have pupils study an ecosystem and the relationships within it. Pupils choose a tree, log, etc., and observe all the living and nonliving things near it and how they are interrelated. Pupils might compare the components of different ecosystems and the relationships within each ecosystem.

—Have pupils stake out a small area (approximately one square yard) for intensive and prolonged ecological observation. The area might be on the school grounds or in their own yard. Pupils record regularly in a diary what they observe and what changes take place. Some pupils might observe the area over the course of several seasons, then summarize major changes observed and why these changes took place. Finally, pupils could predict what the area will be like in a few years if the present pattern of change continues to occur.

—Have pupils find examples of as many different birdhouses and feeders as they can. Each should be examined and analyzed to see what type of bird it is best suited for and why. A variation would be to have pupils design a feeder or house to attract a particular kind of bird. They must research the bird's habits, then make the appropriate design. If possible, the birdhouse or feeder should be constructed and put into use.

—Have pupils build miniature structures using a variety of everyday materials.

Examples of structures:	*Examples of materials:*
bridges of different types	toothpicks
buildings	noodles or macaroni
geodesic dome	soda straws
furniture	pipe cleaners
windmill	cardboard boxes (all sizes)
water wheel	tape
	glue
	wire
	paper

—Have pupils design the city of the future. They must consider what the environment will be—undersea, in outer space, or on a depleted planet earth. They must also consider such factors as population, available resources, and modes of transportation.

—Have pupils plan and possibly build a solar cooker of their own design. A variation would be to investigate the present or possible future use of solar energy in the community. Students could contact the local gas or electric company for information.

—Have pupils build a "flying machine" using only one sheet of paper (newspaper, for example). When the planes are completed, a "flight test" is made to measure time in the air and distance flown. After the initial flight pupils can redesign the planes to improve their time and/or distance records.

—Have pupils list the many different ways in which magnets are used. For example,

toys,
potholders on stove,
memo holders on refrigerator,
to separate scrap iron,
industrial uses,
etc.

A variation would be to list the uses of electromagnets and, possibly, to construct an electromagnet to use as they suggested.

—Have pupils find the calorie content of a list of favorite foods and then plan three different menus for breakfast, lunch, and dinner—one that is high calorie, one of moderate calorie content, and one that is "low cal." A variation might be to plan a natural foods diet and a junk foods diet. Pupils could then compare the costs and nutritional values of the various meals or diets, drawing conclusions about the relative merits of each.

—Have pupils check tire advertisements in the newspaper and list the different materials tires are made of—nylon, fiberglass, steel, etc. Pupils might call a tire dealer to find out the advantages and disadvantages of each type. In addition to advantages and disadvantages, pupils could also discover how the different tires are manufactured and what materials are used. Some pupils could develop hypotheses about the impact on society (especially on the environment) if everyone used a certain kind of tire. What resources would be used? What are the possibilities for recycling?

—Have pupils formulate their own explanations as to

why planes and ships have disappeared in the Bermuda Triangle, exploring both natural and supernatural explanations. Pupils must argue the logic and plausibility of each response.

—Have pupils investigate drug abuse—terms connected with it, how specific drugs work, and what effects and side effects particular drugs have on the user. Results might be reported in an individual "factfinder" report, in a panel discussion, or by graphic means such as a chart or bulletin board.

Activities for All Elementary Levels

—Have pupils set up a classroom science museum. Curators must arrange exhibits and write descriptions for each item exhibited. A museum catalog might be assembled and published.

—Have pupils speculate what life would be like without certain natural or manufactured resources that we take for granted. For example, what would our life be like without:

sun (heat)?
water?
oxygen?
gasoline?
synthetic fabrics?

Pupils should try to seek alternatives for these resources.

—Have pupils read widely to collect unusual science facts. These facts may be used to write science riddles that can be put into a booklet or used as a science game. For example,

What animal grows skin but has skin that doesn't grow?
(A snake—it sheds old skin to grow a larger one)

What star is seen during the daytime?
(The sun)

—Have pupils plan, plant, and care for their own garden. This can be a portion of the school playground or a window box garden. It can feature flowers, vegetables, or both. The care of the garden could also include experimenting with different kinds of natural and synthetic fertilizers, and with cooperative planting (placing plants that support

each other close together). Pupils can assume full responsibility for the "care and feeding" of the garden and reap its rewards. (A flower or vegetable show or sale might be the end result.)

—Have pupils set up a Plant Hospital populated by "sick plants" recruited from home and school. Pupils observe the plants' symptoms, then do research to properly diagnose and treat their "patients." They must also obtain the necessary equipment and materials, which may involve fund-raising or an appropriation from the school's budget.

—Have pupils make a flower collection. Specimens should be pressed or dried to maintain a lifelike effect. The resulting collection can be labelled for display or used to make artistic products such as bookmarks, stationery, or wall plaques. Pupils should research and experiment with various methods of drying and pressing flowers to see which method gives the best results.

—Have pupils make nature weavings using a simple nail loom. (Ten nails are placed one inch apart inside a small sturdy box.) Yarn, string, or hemp is woven around the nails, first in one direction, then in the other. Leaves, flowers, and other natural things are woven in, or glued, or sewn on to complete the weaving.

—Have pupils build a weather station. Included might be an indoor/outdoor thermometer, hygrometer, anemometer, rainfall gauge, and barometer. These weather instruments may be homemade, following simple directions in science textbooks or hobby books. Daily weather information may be gathered and compared with television or newspaper weather reports. Students can keep graphs and charts of weather findings. A daily weather forecast might be broadcast over the school public address system or posted in the school office.

—Have pupils create for an endangered bird or animal a miniature model habitat in which all of its needs are met in the most natural way possible. A variation would be to have pupils research and make their own aquarium, vivarium, or terrarium. Earthworm or ant farms can also be made using available materials such as mason jars, sand, moss, etc. Pupils should observe the inhabitants regularly, recording and charting their observations so that they can

refer to this data and draw appropriate conclusions.

—Have pupils design and possibly build a toy that works according to a scientific principal such as magnetism, gravity, or caloric action. A variation would be to have pupils design a Rube Goldberg device in which a certain action occurs because of a series or chain of other actions, often silly in nature. For example,

> A boy wakes up when a glass of water is dumped on his head because a cat jumps on a balance board overhead. The cat jumps because he hears a tape recording of a dog barking.

Rube Goldberg inventions are generally illustrated in detailed cartoon format.

—Have pupils examine the classroom and school for ways to conserve energy. Suggestions should be relayed to the principal and carried out if possible. Pupils can also conduct a home energy conservation campaign to save heat, water, and electricity. Encourage them to conduct research on water use for showers, toilets, baths, dishes; compare alternative sources of energy in terms of cost and effectiveness as well as impact on local and world environment; examine temperature control throughout the house, etc.

Sample Integrating Lesson

"Solar Fair"

Gifted and talented students might enjoy planning and presenting a science fair—not the usual "eclectic" science fair but one in which the focus is on a particular area or aspect of science. All the explanations, demonstrations, and displays in the fair would be related to this single topic, and show evidence of thorough research, and experimentation and/or development via use of accurate and attractive models, visuals, or physical evidence.

For example, a Solar Fair might feature projects related to investigations of the sun—its composition and appearance (sunspots), its importance to earth (growing experiments showing the principle of photosynthesis), what we know about the sun from recent scientific investigations, and how the sun produces great energy.

Projects showing different uses of solar energy (including heating buildings and running machinery) could also

be developed. Models of solar heaters and cookers of various kinds could be made, displayed, and explained. Future uses of solar power, and an investigation of what living things on earth would do without energy from the sun are other project considerations.

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GENERAL ACTIVITIES FOR GIFTED AND TALENTED PUPILS

All of the following activities can be adapted to any content area and can be used with younger or older gifted and talented elementary pupils. These projects are specially designed to emphasize integration of the skills previously discussed.

—Have pupils unscramble the specific vocabulary relating to a content area unit or topic. For example, in social studies,

arni seofrt (rain forest)
sprocit (tropics)

A variation would be to have pupils find content vocabulary words or phrases in Word Search puzzles, or make up original Word Searches using specialized vocabularies.

—Have pupils construct their own crossword puzzles using specialized vocabulary words from a specific subject or area (for example, science words related to plant life or social studies words related to current events). To make a successful crossword puzzle, pupils must fit words onto the puzzle grid and write phrase or sentence clues.

—Have pupils make personal dictionaries of new and unique words they encounter in their reading in and out of school. These dictionaries can be general or can relate to a specific subject (for example, science words). This can become an extensive long-range activity that requires a looseleaf notebook with individual sections for each letter of the alphabet or for each subject area.

—Have pupils develop their own *Guinness Book of World Records* by writing in a notebook interesting facts about a single topic or a composite of topics. This project might be developed into an illustrated volume that is shared with others.

—Have pupils devise and implement a catalog system for the classroom library or book collection. The system might use simple alphabetical order for primary level, or might use the Dewey Decimal system or Library of Congress system for intermediate level. On a larger scale this activity could be expanded to include soliciting materials for the classroom library from outside sources (parent do-

nations, garage sale books, fund-raising to purchase new books), cataloging these new acquisitions, and setting up a circulation system for checking books in and out. A system of "volunteer librarians" might be employed.

—Have pupils make their own greeting cards for various special occasions. This involves writing original messages (in prose or poetry form) and designing a card using original drawings, cutouts, small three dimensional objects, etc. A variation would be to have pupils design and make original wrapping paper for a special occasion.

—Have pupils design and make classroom bulletin board displays. These displays may be completely original or can be based on a specific designated topic or theme.

—Have pupils make different types of puppets to be used in spontaneous dramatics activities. The four basic kinds of puppets that might be made are hand puppets, rod puppets, shadow puppets, and marionettes. Puppets can be made of paper bags, rubber balls, fruits and vegetables, or sticks. Mask puppets and "humanettes" (cardboard cutouts worn by a child through which the face and arms can be seen and used) are two other variations. Most children's library collections have several books on puppetmaking which can be consulted for specific directions.

—Have pupils tutor peers or younger children in reading or math. These students might also read or tell stories, teach games and songs, and assist with lunch and field trips —particularly with younger groups. A setup in which older pupils go to the lower grades to "teach" is often popular.

—Have pupils create a new action game to be played on the playground or in the gym. The game may involve individual or team competition and must have specified rules. The game should be taught to the players by its originator(s), who might revise the game rules after its initial tryout.

—Have pupils make up learning games for other pupils. These games could be in any subject area. For example,

Scrambles (mixed up words, phrases, sentences, math problems, or equations)
Searches (hunt for hidden words or phrases)
Transforms (changing one word into another)
Board games

Concentration	Bingo
Old Maid	Dominoes
Rummy	Categories

A good source for teachers and pupils who want to make up original games is *Creating and Using Learning Games* by Craig Pearson and Joseph Marfuggi. Pupils might even design and make several games to be put into a student-designed and operated learning center. A variation would be to have pupils make electric question boards. When the student touches the correct answer to a question or problem with the answer wire, an electric circuit is completed and a light goes on. Once an electric board has been wired, the questions or problems used on it can be changed to cover a variety of subjects.

—Have pupils make an invention using recycled boxes, cans, and other containers, string, wire, rubberbands, paper, etc. After the inventions are complete, pupils must demonstrate what they do and how they work. Students might also write an advertisement for their inventions. A variation would be to have pupils make original musical instruments using cans, boxes, tubes, bottles, string, rubberbands, etc. The resulting instruments can be used to accompany singing, can be played solo, or can be used to form a band.

—Have pupils write lyrics for a class or school song. They might use a familiar melody or compose an original one. The song might be officially adopted by the school for use at special events.

—Have pupils make their own filmstrip about a topic they have researched. In making a filmstrip, pupils must summarize information into a limited number of frames, words, and pictures. Materials needed include a blank filmstrip (color can be removed from old filmstrips by using a bleach and water solution), paper towels, India ink or dark felt-tip pens, lined paper, and facial tissues. Lined paper is put under the blank filmstrip to keep the writing even. A paper towel is used on top of the filmstrip as a "hand rest" while pupils write or draw on the film.

—Have pupils write and produce on videotape an original play or program. The videotape can be edited and later shown to parents, to other pupils, and to the performers

themselves. Older pupils can operate videotape equipment under adult supervision, while younger pupils will have to be taped by an adult. If the school does not have its own videotape equipment, it might be possible to borrow equipment from within the school district, from another school district, or from a nearby university or college.

Sample Integrating Unit

"A Study of the Future"

A study of the future provides an important vehicle for gifted and talented pupils to acquire high level skills and demonstrate their abilities. The activities outlined below have been adapted from the unit presented in Chapter 3 of *Program Design and Development for Gifted and Talented Students.*[5] These activities are not sequenced but are grouped to lead students from an introductory motivating phase, through skill development in several areas, to a culminating experience that could be extended to in-depth research projects or to quality productions for nonschool audiences.

Phase One: Sample Introductory Activities

Interest Centers: Teachers and/or students could create classroom collections of science fiction novels and stories, comic books with futuristic themes, articles reflecting current ideas on population growth, natural resource depletion, space and undersea exploration, etc.

Class Discussions: Teachers or students could read excerpts from magazines such as *The Futurist,* short stories, or news articles that reflect trends. These discussions should revolve around the question "What if . . . ?"

Viewing Activities: Students could view films and television programs with futuristic themes and discuss the feasibility of the plots, themes, technology, or societies presented therein.

Futuring Activities: Teachers could lead students in brainstorming sessions about the future or encourage students to write scenarios or compose stories that reflect their views of the future.

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5. Tuttle, Jr., Frederick B., and Becker, Laurence A. *Program Design and Development for Gifted and Talented Students.* Washington, D.C.: National Education Association, 1980.

Phase Two: Skills Instruction

Reading and Language Arts: Students could read science fiction material and articles about the future. They can also gather information from films, television, and radio. On the basis of the information gathered, students could describe aspects of the society of the future (e.g., eating habits, typical days in the life of _____, etc.). Finally, students could pool their ideas and write short stories or scripts based on their discussions.

Social Studies: Students could read articles or watch documentaries to obtain information about current trends. They could also interview community leaders who might be aware of specific trends in economics, employment, education, or politics. Finally, students should pool their information and ideas, attempting to predict what may happen in specific areas, based on past and present trends.

Math: Using information obtained from reading, viewing, and interviewing, students could develop graphs and charts illustrating trends in various areas. They could also conduct probability experiments so they can become adept at making predictions based on numerical data.

Science: Students could explore several areas such as resource depletion, scientific progress, and medical advances and form hypotheses about what will happen in these fields in the future. They could also conduct experiments (such as those related to alternative energy sources) to study future applications.

Other: In addition to developing skills in the content areas, students should also develop skills in problem solving and creative thinking. Following the pattern described in Chapter 2 of *Program Design and Development for Gifted and Talented Students*, pupils could work through a specific problem in small or large groups. In this process they: (1) select a problem they would like to explore (e.g., how to tap undersea resources); (2) brainstorm several alternative solutions to the problem; (3) evaluate the alternatives (perhaps after some research); (4) select the most feasible alternative; and, finally, (5) test the alternative in a hypothetical or model situation.

Although these activities suggested here are presented

separately, the best way to implement them in the classroom would be to have students work in several areas simultaneously, integrating concepts and skills from a variety of areas. This may be difficult to accomplish in most classrooms, but teachers should note that one of the primary characteristics of many gifted and talented individuals is their abiilty to gather ideas from a variety of sources and synthesize them into new forms. To develop and take advantage of this skill, teachers should provide many opportunities for integration of material.

Phase Three: Culminating Experiences

Students could work on extensive class projects, or, even better, direct their projects to different audiences (other classes, professional organizations, community groups, etc.). Some possibilities include the following:

- Write stories about life in the future.
- Develop a "future" newspaper depicting events and attitudes of that time.
- Produce a dramatic presentation (radio, film, or television) depicting an aspect of the future.
- Write expository articles describing future trends and the consequences of contemporary activities and attitudes (e.g., use of disposable containers).
- Design a city of the future, describing vocations, politics, home life, transportation, and energy sources.
- Write articles exploring specific areas of contemporary life as they might evolve in the future (e.g., education, voting, use of computers in the home).

General Activities Resources

Pearson, Craig, and Marfuggi, Joseph. *Creating and Using Learning Games.* Palo Alto, Calif.: Learning Handbooks, 1975.

Tuttle, Jr., Frederick B., and Becker, Laurence A. *Program Design and Development for Gifted and Talented Students.* Washington, D.C.: National Education Association, 1980.

Teaching the Gifted and Talented in the Elementary Classroom presents a variety of activities specifically selected for gifted and talented pupils who are in a self-contained classroom situation in kindergarten through grade six. The activities emphasize skills relating to those characteristics of gifted and talented pupils previously identified: general and specific intellectual abilities, creative/productive thinking ability, psychomotor ability, leadership ability, and visual and performing arts abilities.

Separate sections are devoted to the major content areas included in most elementary schools: reading and language arts, social studies, math, and science. A fifth section includes general activities that can be applied to any content area. A sample Integrating Lesson is provided for each section which incorporates many activities and skills relating to that content area in a unified and organized way. The activities included are a comprehensive selection which teachers can use as is, or modify for their own particular classroom situation. They also will provide a departure point from which new activities can be developed by teachers and pupils.

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